

Test specifications

Fuel injection pumps and governors

En.

WPP001/4MTU 22,4 d
1. Edition

PE6ZWM 150/120RS1031/11 RQ U 425/1200ZWA 63 R
Note VDT-I-420/112; See page 2

Replaces

Firm:

Engine:

MTU
MB 833-TAM

1 - 2 - 3 - 4 - 5 - 6
0 -45-120-165-240-285° ± 0,5° (± 0,75°)

Komb.-Nr.

All test specifications apply only to Bosch fuel-injection pump test benches and equipment 406 036 031

A. Fuel-injection-pump settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC) cyl.6

Testoil-ISO 4113

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	18,0+0,1	523,0-533,0	16,0(24,0)	520,0-536,0	--
1000	9,0-9,2	176,0-196,0	13,0(19,0)	171,0-201,0	
300	9,0-9,2	113,0-133,0	14,0(21,0)	108,0-138,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm min ⁻¹ 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm min ⁻¹ 9	mm min ⁻¹ 10	Control-rod travel mm min ⁻¹ 11
max.	1200	18,0-18,5	-	-	-	ca.23	200	14,8-18,0	-	-
	10,9	1220-1235					400	7,6- 8,1		
	5,9	1250-1300					425	6,5		
	0	1320-1370					600	0,5-1,5		
							1200	0,5-1,5		
							0	1225-1275		

Torque control travel a = mmSpeed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	High idle speed cm ³ /1000 strokes 7
1200	297,0-301,0 (295,0-303,0)	-	800	282,0-315,0 (278,0-319,0)	425	52,0- 66,0 dispersion 9,0

Checking values in brackets

3.83

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1. For checking the injection-pump assembly the oil-metering valve must be unscrewed, to avoid destruction by running dry.

2. Set stop screw at 1 mm

3. Set shutoff device to 0.5 - 1.5 mm

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 22,4 d 1

1. Edition

En.

PE 6 ZWM 150/120 RS 1031/11 Z RQU 425/1200 ZWA 63 R

1 - 2 - 3 - 4 - 5 - 6

0 - 45-120-195-240-285° ± 0,5° (± 0,75°)

Note VDT-I-420/112; See page 2

Replaces

Firm: -

Engine: MTU

MB 833 - TAM

Komb.-Nr. 0 406 036 033

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke ^{2,5-2,6}
(2,45-2,65) mm (from BDC) cyl.6

Rotational speed min ⁻¹	Control-rod travel mm	Fuel delivery Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes	Spring pre-tension (torque-control valve)
1	2	3	4	5	
1000	18,0±0,1	523,0-533,0	16,0(24,0)		
1000	9,0-9,2	176,0-196,0	13,0(19,0)		
300	9,0-9,2	113,0-133,0	14,0(21,0)		

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control lever deflection degrees	mm	Control-rod travel mm min ⁻¹	Control-rod travel mm	Control-rod travel mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	18,0-18,5	-	-	-	ca.23	200	15,0-18,0	-	-
	12,2	1225-1240					400	7,1- 9,0		
	5,0	1280-1325					425	6,5		
	4,0	1290-1335					600	0,5- 1,5		
	0	1320-1375					1200	0,5- 1,5		
							0	1225-1275		

Torque control travel a = mm

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹	cm ³ /1000 strokes	min ⁻¹	min ⁻¹	cm ³ /1000 strokes	min ⁻¹	High idle speed cm ³ /1000 strokes
1	2	3	4	5	6	7
1200	345,0-349,0 (343,0-351,0)	-	800	343,0-353,0 (340,0-356,0)	425	52,0-66,0 dispersion 9,0

Checking values in brackets

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1. For checking the injection-pump assembly the oil-metering valve must be unscrewed, to avoid destruction by running dry.
2. Set the idle stop to $n = 425 \text{ min}^{-1}$ at control-rod travel 6.5 mm
3. Set stop screw at 1 mm
4. Set shutoff device to 0.5 - 1.5 mm

Test specifications

Fuel injection pumps and governors

WPP 001/4 MTU 44,3 a
2. Edition

En

PE 8 ZWM 160/120 RS 2001 RQUV 300-1050 ZWA 65 R

Komb.-Nr. 0 406 038 023

1 - 2 - 6 - 3 - 4 - 5 - 7 - 8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Replaces 3.82
Firm: MTU
Engine: 396-03
960 kW

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke $2,5 - 2,6$ mm (from BDC) Zyl. 8 - control rod in center position
(2,45-2,65)

Rotational speed min ⁻¹ 1	Control-rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	18,0+0,1	622,0-636,0	20,0 (30,0)	619,0 - 639,0	-
1000	9,0-9,1	220,0-248,0	28,0 (42,0)	215,0 - 253,0	
300	9,0-9,1	104,0-128,0	16,0 (24,0)	99,0 - 133,0	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated speed			Medium rated speed			Lower rated speed			Torque control	
Control lever deflection degrees 1	mm min ⁻¹ 2	Control-rod travel mm min ⁻¹ 3	Control lever deflection degrees 4	mm min ⁻¹ 5	Control-rod travel mm min ⁻¹ 6	Control lever deflection degrees 7	mm min ⁻¹ 8	Control-rod travel mm min ⁻¹ 9	min ⁻¹ 10	Control-rod travel mm min ⁻¹ 11
ca. 82	1050	18,0	ca. 27	375	8,0	ca. 21	300	8,0	-	-
	17,0	1055-1075		200	14,3-17,2		200	10,8-14,2		
	4,0	1150-1210		300	10,3-11,8		400	3,9-5,0		
	1250	0-2,0		500	1,9-3,7		485-590	0		
				590-720	= 0					

Torque control travel dimension a = mm

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed	Fuel-delivery characteristics		Starting fuel delivery	
min ⁻¹ 1	cm ³ /1000 strokes 2	Adjustment at the min ⁻¹ 3	min ⁻¹ 4	cm ³ /1000 strokes 5	min ⁻¹ 6	cm ³ /1000 strokes 7
Not known.		300 = RW 8,0 mm	-	-	-	-

Checking values in brackets

5.83

Testoil ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 b 1
1. Edition

En

PE 12 P 120 A 320 LS 3819-2 RQV 350-1050 PA 493

supersedes Daimler-Benz

company OM 424 A

engine 357 kW (485 PS)

1-5 -9 - 8 - 3 - 4 -11-10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

Komb.-Nr.

0 401 840 711

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,2+0,1	15,1-15,3	0,5(0,8)			
350	4,6-4,8	1,2- 1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 10	100	min. 6,2	300	0,9-1,1
ca. 56	9,2	1080-1090					350	4,6-4,8	550	3,4-3,6
	4,0	1175-1205							800	4,7-4,9
	1350	0 - 1,0				360-500			1050	6,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control (5) travel Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 1050	0,6 bar 151,0-153,0 (148,0-156,0)	1080-1090*	LDA 1050 ** LDA 500	0,6 bar 120,0-123,0 (117,0-126,0) 0 bar 124,0-126,0 (121,0-129,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Set at the reduced-delivery stop.

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D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS3819-2 +ROV..PA 493	0,28	0,60 0 0,24	9,9-10,0 10,2-10,3 9,4-9,5 9,6-9,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d
3. Edition

En

PE 8 P 120 A 920/4 LS 7008 RQV 200-950 PA 547-1
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes 9.83
company Scania
engine DSC 1401
Komb.-Nr. 0 402 648 807

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,5-4,6$ mm (from BDC) RW=6,0 - 8,0 mm
(4,45-4,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2±0,3	20,1-20,3	0,7(1,0)			3,3±0,1
225	4,6-4,8	1,4- 1,8	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in .

** Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0 mm.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	990	15,2-17,8	-	-	-	ca. 9	100	min.5,9	150	0,5-0,9
ca. 60	13,2 4,0 1250	990-1000 1115-1145 0-1,0					225 310-370 = 2,0	4,4-4,6	420 680 950	3,0-3,5 4,8-5,1 7,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000 *	LDA 950	0,9 bar 194,0-202,0 (193,0-205,0)	100	250,0-300,0 bei 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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Test oil-ISO 4113

A8

A8

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 7008 +RQV..PA 547-1	0,35	0,90 0 0,24	13,6 - 13,7 14,2 - 14,3 11,5 - 11,6 12,1 - 12,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Distributor-Type Fuel Injection Pump

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WPP 001/4 IHC 5,8g 1

3. Edition

En

Testoil-ISO 4113

VA 6/110 H 1100 CR 180-1
CR 180-1 P
0 460 316 018

supersedes 6.82
company IHC
engine DT 358 "1246"

Pre-stroke setting $0,5 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,7-6,7 mm	0	
1.2 Supply pump pressure	800	4,8-5,3 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	800	77,0-79,0 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	800	85,5-86,5 cm ³ /1000 strokes	0,4	2,5
1.4 Idle speed regulation	450	14,5-20,5 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind. 95,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1180	41,0-49,0 cm ³ /1000 strokes	0,4	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350 (170-380)	400	800	900-1050
	mm	Beginn	1,0-2,0 (0,7-2,3)	(5,4-7,0)	6,9-7,6 (6,6-7,9)
2.2 Supply pump	rev/min	200		800	1100
	kp/cm ²	1,3-1,8 (1,1-2,0)		(4,6-5,5)	6,0-6,4 (5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1280 (1190-1300)	0	0,4
		1180	Start 40,0-50,0	0,4
		1100-1130		
		1050	85,5-89,5 (85,5-90,5)	0,4
		800	(85,0-87,0)	0,4
		800	(76,0-80,0)	0
		500	78,5-81,5 (77,5-82,5)	0,2
	Stop	1100	0	
Idle stop	Full	530-580 (510-600)	0	
		450	(13,5-21,5)	
		100	mind. 95,0	
End stop		220-320		

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ γ δ	Pump Dimension \bar{TV} 0,6 mm Dimension \bar{V} 24,6 mm

Stop check at $n = 70 \text{ min}^{-1}$

LDA start: 0.04-0.07
 End: 0.21-0.25

Test Specifications Distributor-Type Fuel Injection Pump

En

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WPP 001/4 IHC 5,8 g 2

2. Edition

VA 6/110 H 1100 CR 180-2

0 460 316 022

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 6.82
company I H C
engine DT 358

Pre-stroke setting 0,5 mm \pm 0,02 (\pm 0,04)

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	5,7-6,7 mm	0	
1.2 Supply pump pressure	800	4,8-5,3 kp/cm ²	0	
1.3 Full-load delivery without charge-air pressure	800	77,0-79,0 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	800	85,5-86,5 cm ³ /1000 strokes	0,4	2,5
1.4 Idle speed regulation	450	14,5-20,5 cm ³ /1000 strokes	0	3,0
1.5 Start	100	mind. 95,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1180	41,0-49,0 cm ³ /1000 strokes	0,4	

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	200-350 (170-380)	400	800	900-1050
	mm	Start	1,0-2,0 (0,7-2,3)	(5,4-7,0)	6,9-7,6 (6,6-7,9)
2.2 Supply pump	rev/min	200		800	1100
	kp/cm ²	1,3-1,8 (1,1-2,0)		(4,6-5,5)	6,0-6,4 (5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm ³ /10 s	55-100 (40-110)			55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1210-1280 (1190-1300)	0	0,4
		1180	(40,0-50,0)	0,4
		1100-1130	Start	
		1050	86,5-89,5 (85,5-90,5)	0,4
		800	(85,0-87,0)	0,4
		800	(76,0-80,0)	0
		500	78,5-81,5 / 77,5-82,5)	0,2
		1100	0	
Idle stop	Full	530-580 (510-600)	0	
		450	(13,5-21,5)	
		100	mind. 95,0	
End stop		220-320		

6.83

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ γ δ	Pump Dimension \bar{IV} 0,60 mm Dimension \bar{V} 24,60 mm

Stop check at $n = 70 \text{ min}^{-1}$

LDA start: 0.04-0.07
 End: 0.21-0.25

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/IHC 5,6b1

2. Edition

En

VE 6/12 F 1250 R 23-1; P

Nozzle-and-holder assembly

superseded 4.82

company: IHC

O 460 426 005; 006 P

1 688 901 020 (172 + 3 bar)

engine: DT 402/530 A

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting

-- mm

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,8-4,2 mm	0,73	
1.2 Supply pump pressure	1000	5,0-5,6 bar (kgf/cm ²)	0,73	
1.3 Full-load delivery without charge-air pressure	600	77,0-81,0 cm ³ /1000 strokes	0	3,5
Full-load delivery with charge-air pressure	1000	116,0-117,0 cm ³ /1000 strokes	0,73	
1.4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1380	22,0-28,0 cm ³ /1000 strokes	0,73	
1.7 Load-dependent start of delivery	--	--		

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,73 bar	n = rev/min mm	600 1,1-1,9(0,8-2,2)	1000 (3,3-4,7)	1200 4,7-5,4(4,3-5,7)
2.2 Supply pump LDA=0,73 bar	n = rev/min bar (kgf/cm ²)	400 3,0-3,6		1200 5,5-6,1
Overflow delivery	n = rev/min cm ³ /10 s	400 55-138(40-153)		1250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1450	max. 1,0	
	1400	min. 1,0	0,73
	1380	(21,0-29,0)	0,73
	1250	106-110 (105,7-110,3)	0,73
	1000	(114,2-118,8)	0,73
	* 600	97-101 (96,0-102,0)	0,26
	600	(76,0-82,0)	0
switch-off	1250	0	
Idle stop	385-450 350	0 (16,0-24,0)	
End stop	350 550	min. 85,0 max. 87,5	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,4-5,6
MS	1,0-1,2
SVS	4,2-6,0
A	
B	

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 4,2 c

1. Edition

En

BR-PES 4 A 80 ^C_D 320/3 RS 1272

RSV 350-1000A2B 658 DR

supersedes -

company MWM

engine D 226/4

Use overflow valve 1 417 413 012

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 12 mm and 21 mm = 0.8 - 9.0 mm

Port closing at prestroke

2,2 - 2,3
(2,15-2,35)

mm (from BDCRW = 12 mm)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9,0	4,1-4,5				
200	6,0 15,0 9,0	1,2-2,0 10,3-11,1 2,6-3,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.44	1000 1060 1120	16,0 12,3 7,3	without auxiliary spring with auxiliary spring			ca.23	350	6,0	980 900 700 500	0 0 0,5-0,7 0,5-0,8
2a	1100 1140 1350	8,4-10,2 5,2-7,0 0,3-1,5					100 350 450 550 750	19,0-21,0 5,7-6,3 4,2-5,6 2,4-4,6 0-1,5		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
980	59,5-61,5 (56,5-64,5)	1010-1020*	700 500	62,0-65,0 (59,0-68,0) 58,5-61,5 (55,5-64,5)	100	min. 89,0	350	6,0	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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A15

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 MWM 3,4 a

1. Edition

En

BR-PES 4 A 80 D 320 RS 1282 RSV 350-1500 A2B 726 DR

Komb.-Nr. 9 407 083 226

supersedes
company MWM
engine D-225-4

Use overflow valve 1 417 413 012

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3 (2,15-2,35) mm (from BDC) $RW = 12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,0	4,1-4,5	0,4			
200	6,0 15,0 9,0	1,2-2,0 10,3-11,3 2,6-3,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 66	1500 1580 1660	16,0 10,5 4,8	without auxiliary spring			ca. 21	350	6,0	1480 1300	0 0
②a	1600 1650 1800	7,5-10,0 4,5-6,3 0-1,0					100 350 450 550 750	19,0-21,0 5,7-6,3 4,2-5,6 2,4-4,6 0-1,5	1000 700 500	0,8-1,0 0,9-1,1 0,9-1,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
480	52,5-54,5 (49,5-57,5)	510-1530*	1000 700 500	54,0-57,0 (51,0-54,0) 50,0-53,0 (47,0-56,0) 46,5-49,5 (43,5-52,5)	100	min. 89,0	350	6,0	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4HAN 10,8 a 1

8. Edition

En

PE 6 A 95 D 320 RS 2364

EP/RSV 350-1100 A8B1070 R supersedes 4.83

Komb.-Nr. 0 400 676 127

company MF-Hanomag
engine D 963 A1

** Test cold-start device according to VDT-I-DAF 004,
page 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,5+0,1	13,5-13,8	0,3(0,6)			
350	6,7-6,9	1,4-2,0	0,3(0,5)			
500	-	C, Sp. 4 u. 5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0	-	-	-	ca.24	350	5,5	480	13,5-13,6
	X = 5,5						100	min. 19,0	400	13,8-14,2
ca.57	12,5	1140-1150					350	5,9-6,1		
2a	4,0	1205-1235					435-495	= 2,0		
	1380	0,3-1,7					600	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1100	134,0-136,0 (132,0-138,0)	1140-1150*		500	131,0-134,0 (129,0-136,0)	100	20,0-20,5 mm RW **	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1b1

1. Edition

En

PES6A85D 410/3 RS2366

EP/RS 325/1325 AOB 691 DL

supersedes

company

KHD

engine

BF6L913

Komb.-Nr. 0 400 866 057

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	11,4+0,1	7,6-7,7	0,3(0,45)			
200	8,9-9,1	1,6-2,2	0,3(0,05)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	VH ca. 6	325	6,0	850	11,9-12,1
	X = 7,0					FH ca. 30	400	2,7-3,7	500	11,9- 12,
VHca. 66	10,4	1355-1365					800	2,7-2,9		
FH max.	4,0	1450-1480					1300	2,0-2,2		
2a	1630	0 - 1,0					1400	0 -1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1325	0,5 bar 75,5-76,5 (74,5-77,5)	1355-1365*		LDA 500	0 bar 45,0-48,0 (43,5-49,5)	100	110,0-120,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 b 1

 Test at n = 700 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A...RS2366 + EP/RS...A0B691DL	0,50	0,38 0,10	11,4 - 11,5 11,1 - 11,2 9,4 - 9,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 7,4 c

1. Edition

En

PES 6 A 90 D 410 RS 2438 RQ 275/1300 AB 892 DL

Komb.-Nr. 0 400 846 331

supersedes...

company: OM Brescia

engine: CP 3/42.200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25
(2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,5+0,1	7,3-7,4	0,3(0,45)			
200	9,0-9,2	2,1-3,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11		Control rod travel mm 12	
1250	14,7-15,3	1250	15,0	9,5	1330-1370	275	5,8	100 min. 8,1	600	11,2-11,3			
				4,0	1400-1470			275 4,8-6,8	1100	10,5-10,6			
				1550	0 - 1,0			410- 490=2,0					

Torque-control travel
on flyweight assembly dimension a =

0,3

mm

Speed regulation. At

1330-1370 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1300	73,0-74,0 (71,0-76,0)	600		1000	71,5-73,5 (69,5-75,5)	-		-	
				600	65,0-67,0 (63,0-69,0)				

Checking values in brackets

Control switch must light up at n = 1445-1465

10.83

Testoil-ISO 4113

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A20

A20

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 p 19

1. Edition

En

PES 6 A 95 D 410 LS 2541 RQ 250/1100 AB 1050 DL

Komb.-Nr. 0 400 846 417

supersedes _

company MAN

engine D 2566 MUH
154,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,5+0,1	10,1-10,3	0,35(0,6)			
250	5,9-6,1	1,0-1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,5 4,0	1145-1160 1180-1210	250	6,0	100 250 360-400 = 2,0	min. 7,5 5,9-6,1 = 2,0	1100 840 740 550	10,5-10,6 10,5-10,8 10,7-10,9 10,9-11,1

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	100,5 - 102,5 (98,5 - 104,5)	-	700	87,5-90,5 (85,0-93,0)	100	121,5-131,5 (118,5-134,5)
			500	max. 93,5 (max. 96,0)		= RW 14,0 - 14,6 mm

Checking values in brackets

9.83

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A24

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 p 18

1. Edition

En

PES 6 A 95 D 410 LS 2542

RQ 250/1100 AB 1050 DL

Komb.-Nr. 0 400 846 430

supersedes

company: MAN

engine: D2566 MFO/MFOR
147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,5+0,1	10,1-10,3	0,3(0,6)			
250	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
550	15,6-16,4	550	16,0	9,5 4,0	1145-1160 1180-1210	250	6,0	100 250 360-400 = 2,0	min. 7,5 5,9-6,1	1100 840 740 550	10,5-10,6 10,5-10,8 10,7-10,9 10,9-11,1

Torque-control travel
on flyweight assembly dimension a =

0,2

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
1100	100,5-102,5 (98,5-104,5)	-	-	700 500	87,5-90,5 (85,5-92,5) max. 93,5 (max. 95,5)	100 250	125,0-135,0 (122,0-138,0) =14,0-14,6 mm RW 6,0 mm RW

Checking values in brackets

9.83

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A22

A22

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 17

1. Edition

En

PES 6 A 95 D 410 LS 2542 RQ 250-1100 AB 1178 L

Komb.-Nr. 0 400 846 519

supersedes

company MAN

engine D 2566 ME

177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC) 7yl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,5-12,7	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1125	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	150	0,4-0,7
ca. 48	11,0	1140-1150					250	5,9-6,1	550	4,0-4,4
	4,0	1180-1210							950	6,4-6,9
	1300	0 - 1,0							1200	10,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	500	max 113,5 (max. 115,5)	100	121,5-131,5 (118,5-134,5) = 14,0-14,6 mm RW	-	-
					250	6,5 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 16

1. Edition

En

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 1185 L

Komb.-Nr. 0 400 846 521

supercedes

company MAN-Fendt

D 2566 ME

engine: Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6
(1,45-1,65) mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,5+0,1	12,6-12,8	0,35(0,6)			
250	7,5-7,7	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1125	15,2-17,8	-	-	-	ca. 14	100 250	min. 9,1 7,5-7,7	150 550 1000 1200	0,4-0,7 4,0-4,4 6,8-7,4 10,3
ca. 48	10,2 4,0 1300	1140-1150 1175-1205 0 - 1,0				3a				

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	126,0-128,0 (124,0-130,0)	1140-1150*	1100 500	111,5-115,5 (109,5-117,5) 113,5-117,5 (111,5-119,5)	100 250	121,5-131,5 (118,5-134,5) = 15,4-16,0 mm RW 7,6 mm RW	1100 500 940 1025	11,2+0,1 12,5+0,1 12,1+0,2 11,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 i 3

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/1100AB 1137-3 L

Komb.-Nr. 0 400 845 065

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0 (\pm 0,75^0)$

supersedes
company MAN
engine

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $(1,45-1,65)$ mm (from BDC) Zyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	11,2-11,3	0,3(0,6)			
250	6,9-7,1	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,0 4,0	1145-1160 1185-1215	250	6,0	100 250 355	min. 7,5 5,9-6,1 395=2,0	1100 600 790 955	11,0-11,1 11,8-11,9 11,6-11,8 11,1-11,4

 Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	111,5-112,5 (109,5-114,5)	-	750 500	106,5-110,5 (104,5-112,5) max. 111,5 (max. 113,5)	100 250	150,0-160,0 (147,0-163,0) =15,7-16,3 mm RW 6,0 mm RW

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o 3

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 1177-1 L

supersedes

company MAN

engine D 2565 M/MF

Komb.-Nr. 0 400 845 072

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0 (\pm 0,75^0)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC) 7yl. 5			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes
1	2	3	4	2	3
1100	11,0+0,1	11,1-11,3	0,35(0,6)		
250	6,4-6,6	0,8-1,4	0,35(0,5)		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca. 14	100	min. 8,0	150	0,4-0,7
ca. 45	10,0	1140-1150					250	6,4-6,6	550	3,6-4,0
	4,0	1180-1210							900	5,6-6,1
	1300	0 - 1,0							1200	9,9

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational speed		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop	Test oil temp 40°C (104°F)	limitation	intermediate speed	high idle speed		idle	switching point	travel	Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
1100	110,5-112,5 (108,5-114,5)	1140-1150*	750	106,5-110,5 (104,5-112,5) max. 111,5 (max. 113,5)	100	146,5-156,5 (143,5-159,5) =16,9-17,5 mm RW 6,5 mm RW	1100	11,0+0,1	
			500				500	11,4+0,1	
							845	11,3+0,2	
							985	11,0+0,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o 2

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 1178 L

Komb.-Nr. 0 400 845 076

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

supersedes-
company: MAN
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
(1,45-1,65) mm (from BDC) Zyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1125	15,2-17,8	-	-	-	ca. 12	100 250	min. 7,5 5,9-6,1	150 550 900 1200	0,4-0,7 4,0-4,4 6,0-6,5 10,2
ca. 48	10,0 4,0 1300	1140-1150 1170-1200 0 - 1,0				3a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	110,5-112,5 (108,5-114,5)	1140-1150*	-	-	100 250	146,5-156,6 (143,5-159,6) = 15,6-16,2 mm RW 6,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 i 1
3. Ausgabe

En

PES 5 A 95 D 410 LS 2543 Y RQ 250/1100 AB 1039 DL
Komb.-Nr. 0 400 845 055
1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 10.82
MAN
company
engine D 2565 M/MF (0)
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
($1,45-1,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,6±0,2	29,3-9,5	0,3(0,6)			
250	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	15,6-16,4	600	16,0	9,0	1145-1160	250	0,0	100	min. 7,5	1100	9,9-10,0
				4,0	1180-1210			250	5,9-6,1	700	10,6-10,8
				1300	0-1,0			380-440	0-2,0	500	10,7-10,9

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
700	92,5-94,5 (90,5-96,5)	-		1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5 (143,5-159,5)
				500	90,5-94,5 (88,5-96,5)		

Checking values in brackets

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 9,2 i 2

1. Edition

En

PES 5 A 95 D 410 LS 2543 Y RQ 250/1100 AB 1137-3 L

supersedes-

company MAN

engine D 2565 M/MF

124 kW

Komb.-Nr. 0 400 845 066

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $(1,45-1,65)$ mm (from BDC) Zyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	9,3 - 9,5	0,3(0,6)			
250	6,8-7,0	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,2 4,0 1300	1145-1160 1180-1210 0 - 1,0	250	6,9	100 250 380-440=	min.8,4 6,8-7,0 2,0	1100 700 500	10,2-10,4 11,0-11,1 11,0-11,2

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	92,5-94,5 (90,5-96,5)	-	1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5 (143,5-159,5)
			500	90,5-94,5 (88,5-96,5)		=17,1-17,5 mm RW

Checking values in brackets

9.83

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B5

65

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o 1

1. Edition

En

PES 5 A 95 D 410 LS 2543 Z RQV 250-1100 AB 1177-1 L

Komb.-Nr. 0 400 845 073

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company: MAN

engine: D 2565 M/MF
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$
(1,45-1,65) mm (from BDC) Zyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	9,9-10,0	9,2-9,4	0,35(0,6)			
250	7,2-7,4	1,5-2,1	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca. 15	100	min. 8,7	150	0,4-0,7
ca. 45	8,9	1140-1150					250	7,2-7,4	550	3,6-4,0
	4,0	1175-1205							950	6,0-6,5
	1300	0 - 1,0							1075	9,3
						3a				

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	91,5-93,5 (89,5-95,5)	1140-1150*	700	86,5-90,5 (84,5-92,5) max. 88,5 (max. 90,5)	100	146,5-156,5 (143,5-159,5) = 16,9-17,2 mm RW 7,3 mm RW	1100	9,9+0,1
			500				550	10,7+0,1
							820	10,4+0,2
					250		955	10,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

BOSCH

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 i 1

1. Edition

En

PE 6 A 95 D 320 RS 2557

RSV 350-1100 A8B1127 R

A8C1127 R

supersedes

company **MB-Hanomag**

engine **D 963 A/1**

Komb.- Nr. 0 400 676 159

** Test cold-start device according to VDT-I-DAF 004,

page 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDCRW $\approx 9,0 - 12,0$ mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,2+0,1	12,4-12,5	0,3(0,6)			
350	6,6-6,8	1,4- 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min 10 11	
Control rod travel mm 2	Control rod travel mm rev/min 3									
Loose	800 0,3-1,0		-	-	-	ca. 19	350 6,2		1100 13,2-13,3	
	X = 3,75						100 min. 19,5		450 13,2-13,4	
							350 6,6-6,8		400 13,5-13,9	
							470-530 = 2,0			
ca. 50	12,2 1140-1150									
2a	4,0 1220-1250									
	1370 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		mm 9	
1100	124,0-125,0 (122,0-127,0)	1140-1150*	500	121,0-124,0 (119,0-126,0)		-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,81

2. Edition

Testoil-ISO 4113

PE 6 A 95 D 320 RS 2557 Z
Komb.-Nr. 0 400 676 164

RSV 350-1100 A 8 B 1127 R
A 8 C 1127 R

superseded 8.80
company MF Hanomag
engine D 963 A 1 - D 700

En

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,10-2,30)

Port closing at prestroke

2,15-2,25

mm (from BDC) $\Delta W = 9,0 - 12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	12,0 - 12,2	0,3 (0,6)			
350	6,9-7,1	1,1 - 1,6	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min 10 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9			Control rod travel mm 11	
loose	800	0,3-1,0	-	-	-	ca. 18	350	6,5	100	12,6 - 12,7
	x =	3,75					100	min. 19,0	480	12,6-12,8
ca. 50	11,6	1140-1150					350	6,9-7,1	400	12,9-13,5
	4,0	1170-1200					450-510	= 2,0		
2a	1355	0,3-1,7					575	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		Control rod travel mm 9
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7				
1100	119,5 - 121,5 (117,5 - 123,5)	1140-1150*	500	112,5 - 115,5 (110,5 - 117,5)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,021
2. Edition

En

Testoil-ISO 4113

PE 10A90D520/5 LS 2567 RQV250-1250 AB 1075R

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
0 - 45-72-117-144-189-216-261-288-333 $\pm 0,5^\circ (\pm 0,75^\circ)$

supercharge 80

company MAN

engine D 2530 MFX

235 kW (320 PS)

Komb.-Nr. 0 400 649 215

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC) Zyl. 10; RW=9,0 - 12,0 mm
1,50-1,60

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,6-12,7	10,1 - 10,3	0,3(0,45)			
250	7,2-7,4	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	ca. 12	100 250	min. 8,8 7,2-7,4	1290	8,3
ca. 47	11,6 4,0 1550	1290-1300 1390-1420 0 - 1,0				340-450 3a	385-445 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	101,5-102,5 (99,5-104,5)	1290-1300*	800	95,5-98,5 (93,5-100,5) max. 89,0 (max. 91,0)	100	135,0-145,0 (132,0-148,0) =18,3-18,7 mm RW	1250 1120 955 500	12,6 +0,1 12,7 +0,3 13,1 +0,2 13,3 +0,1
						100-170(80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 f 2

1. Edition

En

PE 10 A 90 D 420/5 LS 2567

ROV 250-1250 AB 1182 R

supersedes

company:MAN

Komb.-Nr. 0 400 649 238

engine:

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\overset{1,5-1,6}{(1,45-1,65)}$ mm (from BDG) $\overset{7}{y}1. 10;$ RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,6+0,1	10,2 - 10,3	0,3(0,45)			
250	7,2-7,4	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1210	15,2-17,8	-	-	-	ca. 13	100	min. 8,8	200	0,7-0,9
ca. 49	11,6 4,0 1500	1290-1300 1385-1415 0 - 1,0				330-440	250	7,2-7,4	550 1000 1350	3,3-3,7 6,2-6,4 9,5

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	101,5-102,5 (99,5-104,5)	1290-1300*	800	95,5-98,5 (93,5-100,5) max. 89,0 max. 91,0	100	135,0-145,0 (132,0-148,0) =18,3-18,7 mm RW	1250	12,6+0,1
			500		250	7,0 mm RW	500	13,3+0,1
							955	13,1+0,2
							1120	12,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,8 n 7
3. Edition

En

PES 4 A 90 D 410 RS 2570

RSV 350-1200 A 2 B 1147 L

Testoil-ISO 4113

supersedes 8.82

company Daimler-Benz

engine OM 314 A

63 kW (86 PS)

Komb.-Nr. O 400 874 232

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		mm (from BDC)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1200	11,8+0,1	6,4 - 6,5	0,2(0,25)			
350	8,9-9,1	1,2 - 1,6	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	lose	350	9,0	1180	11,8+0,1
	x =	5,75					100	min. 18,0	900	12,2+0,2
							300	8,9-9,1	600	12,6+0,1
ca. 51	10,8	1230-1240					550-610	2,0		
⑤	4,0	1370-1400								
	1475	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	mm
1200	63,5 - 64,5 (61,5 - 66,5)	1230-1240 *	600	57,0-59,0 (55,0 - 61,0)	100	78,0-88,0 (75,0-91,0) = 16,9-17,3 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 6,1 f

3^a Edition

En

Testoil-ISO 4113

PES 6 A 85 D 410 RS2572

RQ 300/1325 AB1070DL (1)

RQV 300-1325 AB1072DL (2)

supersedes 9.82

company. K H D

engine. BF 6 L 913

118 kW (160 PS)

2650 min⁻¹

Komb.-Nr. 0 400 846 440 (1)

0 400 846 444 (2)

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,20-2,30}{(2,15-2,35)}$ mm (from BDC) $\frac{9,0 - 12,0}{mm}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	13,1+0,1	8,9 - 9,0	0,3(0,45)			
300	4,9-5,1	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 10		Control rod travel mm 12
855	19,2-20,8	855	20,0	12,1	1370-1385	300	6,0	100 min. 7,5		-	-
VH = max. 46°				4,0	1450-1480			300 5,9-6,1			
				1550	0 - 1,0			505-545=2,0			
								625 0 - 1			

Torque-control travel
on flyweight assembly dimension a =

0

mm

Speed regulation: 1370-1385 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7
LDA 1325	0,7 bar 89,0 - 90,0 (87,0 - 92,0)			LDA 850	0,7 bar 83,0 - 86,0 (80,5 - 88,5)	100	19-21 mm RW, (Magnet 24 V!)
				LDA 500	0 bar 58,0 - 60,0 (55,5 - 62,5)		

Checking values in brackets

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B. Governor Settings

RQV..1072DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min mm	Control rod travel	Degree of deflection of control lever	rev/min mm	Control rod travel	rev/min mm	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1325	15,2-17,8	-	-	-	ca.13	100	min.7,5	300	1,4-1,6
							300	5,9-6,1	900	4,2-4,4
							375-435	=2,0	1370	8,4
							530	0 - 1		
ca.47	12,1 4,0 1600	1365-1375 1455-1485 0 - 1,0				(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1325	0,7 bar 89,0 - 90,0 (87,0 - 92,0)	1365-1375*	LDA 850	0,7 bar 83,0 - 86,0 (80,5 - 88,5)	100	19-21 mm RW (Magnet 24 V!)		
			LDA 500	0 bar 58,0 - 60,0 (55,5 - 62,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**D. Adjustment Test for Manifold Pressure Compensator**Test at n = ~~XXXXXX~~ decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod difference
	Gauge pressure = bar	Gauge pressure = bar	mm
2572 + 1070D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2
2572 + 1072D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2

En

** Set full-load delivery at control lever and manifold-pressure compensator (LDA). Then turn LDA adjusting sleeve (for delivery amount) 1/2 turn in the direction more control-rod travel.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 15,0 d 2

1. Edition

En

PE10A95D 520/5 LS 2604

RQV 250-1150AB1183 R

supersedes -

company: MAN

engine.

Komb.-Nr. 0 400 649 239

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4
 0-27-72-99-144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) $Zv1. 10; RW = 9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	13,0+0,1	12,5-12,7	0,3 (0,6)			
250	7,9-8,1	0,9- 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 8,5	200	0,5-0,7
ca. 62	12,0	1190-1200					250	6,9-7,1	550	4,5-4,7
	4,0	1280-1310					400-460	=2,0	1000	6,5-6,9
	1400	0 - 1,0							1250	8,6-8,9

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	124,5-126,5 (122,5-128,5)	1190-1200*	650	113,5-117,5 (111,5-119,5 max. 118,5 (max. 120,5)	100	15,9-16,5 mm RW	1150 500 1000 1070	13,0+0,1 13,5+0,1 13,4+0,2 13,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

B14

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B44

②

Test Specifications Fuel Injection Pumps ② and Governors

40

 WPP 001/4 MAN 15,0e
2. Edition

En

PE 10A 95D 520/5LS 2604 RQ 250/1150AB 1130R

Komb.-Nr. 0 400 649 220

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2

0 - 45- 72-117-144-189-216-261-288-333 ° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)superseded 4.80
MANcompany
engine D2840MF

268 kW (364 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,65 - 1,85)
1,70 - 1,80

mm (from BDC) Zyl. 10; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	13,0-13,1	12,5 - 12,7	0,3(0,6)			
250	7,9-8,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications rev/min 9		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5	rev/min 6	Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
550	15,6-16,4	550	16,0	12,0	1195-1210	250	7,0	100 min.8,5	1150	13,0-13,1	
				4,5	1265-1295			250 5,9-7,1	1000	13,0-13,3	
1350	0 - 1							410-470 =2,0	905	13,3 -13,5	
								480 max.1,0	600	13,4-13,5	

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
1150	124,5 - 126,5 (122,5 - 128,5)			650 500	113,5 - 117,5 (111,5 - 119,5) max. 118,5 (max.120,5)	100	5,9-16,5 mm RW

Checking values in brackets

9.83

B15

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4/MAN 15,0 e 1

1. Edition

En

PE 10 A 95D 520/5 LS 2604

RQ 250/1150 AB 1170 R

supersedes
company MAN
D 2840 MF
engine: 268 kW

Komb.-Nr. 0 400 649 226

1 - 8- 7-6 - 3 - 5 - 2 - 10- 9 - 4

0 - 27-72-99-244-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7-1,8$ (1,65-1,85) mm (from BDC) $\phi 1. 10$; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	13,0 $\pm 0,1$	12,5-12,7	0,3 (0,6)			
250	7,9-8,1	0,9- 1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 10				Control rod travel mm 12	
600		600 16,0 12,0 1195-1210				250 7,0 100 min. 8,5				1150 13,0-13,1	
15,6-16,4		1265-1295				250 6,9-7,1				600 13,4-13,5	
						380-420 = 2,0				915 13,3-13,5	
						480 max. 1,0				1010 13,0-13,3	

Torque-control travel
on flyweight assembly dimension a = 0,2 mmSpeed regulation. At 1195-1210 min.⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /~1000 strokes 2				cm ³ /~1000 strokes 5		cm ³ /1000 strokes / mm 7	
1150		-		650		100	
124,5-126,5 (122,5-128,5)				500		250	
				113,5-117,5 (111,5-119,5) max. 118,5 (max. 120,5)		15,9-16,5 mm RW 7,0 mm RW	

Checking values in brackets

9.83

Testoil-ISO 4113

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BAG

B16

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 15,0 d 1

1. Edition

En

PE 10 A 95 D 520/5 LS 2604 RQV 250-1150 AB 1189 R

Komb.-Nr. 0 400 649 240

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4

0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315⁰ ± 0,5⁰ (± 0,75⁰)

supersedes

company: MAN

engine: D 2840 ME

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,7 - 1,8}{(1,65 - 1,85)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	13,0+0,1	12,8-13,0	0,35(0,6)			
250	6,9-7,1	1,0-1,6	0,2(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1230	15,2-17,8	-	-	-	ca. 12	250	6,9-7,1	350	2,0-2,5
ca. 62	12,0	1190-1200					400-	460=2,0	850	5,8-6,0
	4,0	1280-1310							1150	7,5-7,9
	1400	0 - 1,0							1300	9,3-9,8

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	mm	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	128,0-130,0 (122,5-128,5)	1190-1200*	-	-	100	15,9-16,5 mm RW	1150	13,0+0,1
							500	13,5+0,1
							1010	13,4+0,2
							1080	13,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.83

Testoil-ISO 4113

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6 i 1

1. Edition.

En

PE 6 A 95 D 410 LS 2621
Komb.-Nr. 0 400 646 271

RQV 300-1250 AB 1195 L

supersedes

company: KHD

engine: F6L413F
141 kW

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0 - 2,1}{(1,95 - 2,15)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,4+0,1	9,2-9,4	0,35(0,6)			
300	6,4-6,6	0,8-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1270	15,2-17,8	-	-	-	ca. 15	100	min. 8,0	200	0,7-0,9
ca. 47	9,4	1290-1300					300	6,4-6,6	550	3,5-3,9
	4,5	1360-1390					380-440=2,0		1050	6,2-6,6
									1350	9,2

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed (2b) limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1250	91,5-93,5 (89,5-95,5)	1290-1300*	750	93,0-96,0 (90,5-98,5)	100	116,5-126,5 (113,5-129,5)	1250	10,4+0,1	
							750	10,8+0,1	
							845	10,6+0,2	
							950	10,4+0,2	

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

BOSCH

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 f 1

2. Edition

En

PES 6 A 90 D 210 RS 2629

RSV 350-1300 A 0 B 2138 L

supersedes 9.82

Komb.-Nr. 0 400 866 110

A 0 C 2138 L

company Ford

engine 380

At port closing the locating pin must engage
in the slot of the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

^{2,7-2,8}
(2,65-2,85)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	12,9+0,1	7,2-7,3	0,3(0,45)			
350	6,4-6,5	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 34	350	6,0	-	-
	x = 2,75						100	min. 19,0		
ca. 68	11,9	1365-1375					350	6,4-6,6		
⑤	4,0	1505-1535					515-575	= 2,0		
	1670	0,3-1,7					650	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1250	72,0-73,0 (70,0-75,0)	1365-1375*		-	-	100	76,0-90,0 (73,0-93,0) = 19,0 - 21,0 mm RV?	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 f 3
2. Edition

En

PES 6 A 90 D 210 RS 2629
Komb.-Nr. 0 400 866 109

RSV 350-1300 AOB 2139 L
AOC 2139 L

supersedes 2.83
company Ford GB
engine 380

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

At port closing the locating pin must engage
in the slot of the pointer.

Port closing at prestroke

2,7 - 2,8
(2,65-2,85)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,9+0,1	7,2 - 7,3	0,3(0,45)			
350	6,4-6,5	0,9- 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 34	350	6,0	-	-
	x =	2,75					100	min.19,0		
							350	6,4-6,6		
							515-575	=2,0mm		
ca. 68	11,9	1365-1375					650	max. 1,0		
⑤	4,0	1505-1535								
	1670	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1250	72,0-73,0 (70,0-75,0)	1365-1375 *	-	-	100	76,0-90,0 (73,0-93,0) = 19,0 - 21,0 mm REV	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4FOR 5,9 1 2
2. Edition

En

PES 6 A 90 D 210 RS 2629
Komb.-Nr. 0 400 866 103

RSV 35C-1300 AOB 2143 L
AOC 2143 L

supersedes 2.83
company Ford
engine Dover 363

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,7-2,8
2,65-2,85)

mm (from BDC)

At port closing the locating pin must engage in the slot of the pointer.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,7+0,1	5,9-6,0	0,3(0,45)			
350	7,2-7,4	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 40	350	6,8	1250	11,7-11,8
	x =	3,5					100	min. 19,0	700	11,9-12,0
ca. 71	10,7	1370-1380					350	7,2-7,4		
2a	4,0	1515-1545					580-640	= 2,0		
	1680	0,3-1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	58,5-59,5 (56,5-61,5)	1370-1380*	-	-	-	100	76,0-90,0 (73,0-93,0) = 19,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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B21

81.1

Test Specifications Fuel Injection Pumps ① and Governors

40
WPP 001/4 KHD 1 g 3
5. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 8 B 2168 L
ABC 2168 L

Komb.-Nr. 0 400 864 054

1 - 3 - 4 - 2 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 6.83
company: KHD
engine: BF 4 L 913 T
66kW (90 PS)
/ 2300 min⁻¹
tractor DX 92 (1)
60kW (82 PS)
/ 2300 min⁻¹
tractor DX 86 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$ mm (from BDC)
(2,45-2,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5-7,6	
325	7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	ca. 29	325	7,3	1150	11,8+0,1
	X =	4,0					100 min. 19,5		500	12,3+0,1
ca. 53	10,8	1190-1200					325 7,7-7,9		965	12,0+0,2
	4,0	1325-1355					700-760 = 2,0			
	1495	0,3-1,7				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5-118,5 = RW 16,9 - 17,4 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x = 4,0						100	min.19,0	500	11,2+0,1
ca.26	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
②a	4,0	1325-1355					720-780	= 2,0		
	1475	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 d

1. Edition

En

PES 6 A 95 D 410 LS 2644
Komb.-Nr. 0 400 846 520

RQV 250-1100 AB 1178 L

supersedes
company: MAN
engine: D2566ME

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$ mm (from BDC)
(1,45 - 1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,5-12,7	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1125	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 48	11,0	1140-1150					250	5,9-6,1	500	3,7-4,2
	4,0	1175-1205						**	800	5,3-5,8
	1300	0-1,0							1100	8,1

Torque control travel a = mm

** Setting of idle stop at 250 min⁻¹ to 6.5 mm control-rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	110,5-113,5 (108,5-115,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	max. 113,5 (max. 115,5)		14,0-14,6 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 2,9 d

1. Edition

En

PES 3 A 80 D 320 RS 2650 RSV 300-1050 A1B 2171-1 R
Komb.-Nr. 0 400 873 031

1 - 3 - 2 je 120° ± 0,5° (± 0,75°)

superseded

company Eicher

engine EDL 3-3 (-6)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3
(2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	8,7-8,8	4,7-4,8	0,2(0,35)			
300	7,9-8,1	2,4-3,0	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	300	7,5	1050	8,7-8,8
	x = 6,0						100	min.19,5	500	9,7-9,8
							300	7,9-8,1	825	9,2-9,4
							430-490	= 2,0		
ca.61	7,7	1090-1100								
2a	4,0	1125-1155								
	1290	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1050	47,0-48,0 (45,5-49,5)	1090-1100*	500	45,5-48,5 (44,0-50,0)		100	16,7-17,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RAB 9,7 c

1. Edition

En

PES 6 A 95 D 410 RS 2653 RQ 200/1100 AB 1167 L
Komb.-Nr. 0 400 846 495

supersedes -
company: RABA
engine: D 2156 MT/MTK/
MTN 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,7-1,8} (1,65-1,85) mm (from BDC) ^{9,0-12,0} mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	12,7-12,9	0,3 (0,6)			
200	6,3-6,5	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH=	19,2-20,6 max. 46°	600	19,9	11,6 4,0	1145-1160 1190-1220	200	6,4	100 200 320-360 450	min.7,6 6,3-6,5 =2,0 max.1,0	1100 600 810 920	12,6-12,7 13,7-13,8 13,4-13,6 12,8-13,1

Torque-control travel
on flyweight assembly dimension a =

0,4

mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 126,5-128,5 (124,5-130,5)	-	LDA 700 LDA 500	0,7 bar 135,0-138,0 (133,0-140,0) 0 bar max. 84,5 (max. 86,5)	100	156,5-166,5 (153,5-169,5) =17,2-17,4 mm RW

Checking values in brackets

Test oil ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

RAB 9,7c

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES 6 A..RS 2653 +RQ..AB 1167 L	0,70	0 0,24 0,12		13,7-13,8 10,4-10,5 12,8-12,9 11,2-11,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum f_L load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 MWM 3,1 b
1. Edition

En

PES 3 A 90 D 320/3 RS 2658 RSV 325-1500 A2B 505-2 R
Komb.-Nr. 0 400 863 008
1 - 2 - 3 je $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -
company MWM
engine D 226 B-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,95-3,05$ mm (from BDC)
 $(2,90-3,10)$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	10,5+0,1	9,0-9,1	0,3(0,45)			
325	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0	-	-	-	ca. 27	325	6,0	-	-
	x = 5,5						325	6,4-6,6		
							460-520	= 2,0		
ca. 66	9,5	1540-1550								
2a	4,0	1615-1645								
	1780	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	-	100	131,0-141,0 (128,0-144,0) = 19,5- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 4,1 b

1. Edition

En

PES 4 A 90 D 320/3 RS 2659

RSV 325-1500 A2B 505-2 R

Komb.-Nr. 0 400 864 057

supersedes MWM

company D 266 B-4
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05
(2,90-3,10) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	10,5+0,1	9,0-9,1	0,3 (0,45)			
325	6,4-6,6	1,1-1,7	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 27	325	6,0	-	-
	x = 5,5						325	6,4-6,6		
							460-520	= 2,0		
ca. 66	9,5	1540-1550								
2a	4,0	1590-1620								
	1780	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
1500	89,5-90,5 (87,5-92,5)	1540-1550*	-	-	100	131,0-141,0 (128,0-144,0) = 19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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9.83

C5

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 f

1. Edition

En

PES 6 A 80 D 410 RS 2663

RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 499

supersedes -

company: Fiat

engine: 8060.24.661

90,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{2,2 - 2,3}{(2,15 - 2,35)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	13,5+0,1	6,7-6,8	0,25(0,35)			
300	7,1-7,3	0,9-1,5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca. 13	100	min. 9,0	250	0,5-1,1
ca. 61	12,5 4,0	1390-1400 1535-1565				350-450	300 920	7,4-7,6 max. 1,0	550 1000 1550	3,0-3,5 5,5-5,7 10,0

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1350	0,7 bar 66,5-67,5 (65,0-69,0)	1390-1400*	LDA 800	0,7 bar 59,0-61,0 (57,0-63,0)	100	110,0-130,0 (107,0-133,0)	-	-
			LDA 500	0 bar 39,5-41,5 (37,5-43,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 f

- 2 -

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6A..RS2663 + RQV..AB1175L	0,70	0,27 0,23 0	13,5 - 13,6 13,2 - 13,3 12,4 - 12,6 12,0 - 12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 3,9 h

1. Ausgabe

En

PES 6 A 90 D 320 RS 2674

RSV 300-1150 AOB 2001-2 R

Komb.-Nr. 0 400 876 318

supersedes

company Eicher

engine EDL 6-4/5/6

109 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1125	12,0+0,1	7,8-7,9	0,25(0,5)			
300	8,3-8,5	2,4-3,4	0,3(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min 10 11	
Control rod travel mm 2	Control rod travel mm rev/min 3									
lose	800	0,3-1,0	-	-	-	ca. 17	300	7,9	-	-
	x = 3,0						100	min. 19,5		
							300	8,3-8,5		
ca. 42	11,0	1165-1175					390-450	= 2,0		
2a	4,0	1205-1235								
	1375	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		4a Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7					
1125	77,5-78,5 (75,5-80,5)	1165-1175*	-	-	-	100	19,5-21,0 mm RW	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 DEE 7,6 d
1. Edition

En

US-PES 6 A 100 D 410 RS 3036

US-RSV 600-1100 A 2 B 2079L superseded -

Komb.-Nr. 9 400 230 020

company John Deere
engine 6466 T
132 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05
(1,90-2,10) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,8+0,1	10,9-11,1	0,3(0,6)			
600	5,2-5,4	1,2- 1,6	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	600	4,7	1100 750	10,8-10,9 11,6-11,7
ca. 42	9,8	1145-1155					100	min. 19,0		
②a	4,0	1185-1215					600	5,1-5,3		
	1285	0,3-1,7					630-690	= 2,0		
							800	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	rev/min 5	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,8 bar 109,0-111,0 (106,0-114,0)	1145-1155*	LDA 750	0,8 bar 116,0-119,5 (113,0-121,0)	100	170,0-195, High idle speed 1200 19,0-29,0		0 -	-
			LDA 500	0 bar 68,5-71,5 (65,0-73,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 d

- 2 -

Test at n = 500 rev/min decreasing pressure - m bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
US-PES6A..RS3036 + US-RSV..A2B2079L	0,43	0,19	11,5 - 11,6 9,8 - 10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 PEN 7,0 b 2
1. Edition.

En

PE 6 P 110 A 320 RS 260 W
Komb.-Nr. 0 401 876 272

RSV 250-1250 P0/374-2 R

supersedes Volvo-Penta
company
engine TAMD 70 E
228 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,3+0,1	14,1-14,3	0,4(0,75)			
250	5,9-6,1	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		10	11
loose	800	0,3-1,0	-	-	-	ca. 19	250	5,5	-	-
	X =						250	5,9-6,1		
							455-515	= 2,0		
ca. 49	9,3	1290-1300								
2a	4,0	1350-1380								
	1510	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational speed limit Note: changed to . . . rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,9 bar 141,0-143,0 (138,0-146,0)	1290-1300*		LDA 700	0 bar 85,0-88,0 (82,0-91,0)	100	170,0-210,0 =20,0 - 21,0 mm RW	0	-
						250	11,0-15,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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C11

CAA

D. Adjustment Test for Manifold Pressure Compensator

PEN 7,0 b 2 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS 260 W +RSV..PO/374-2R	0,90	0 0,64 0,40	10,3-10,4 8,1-8,2 9,8-9,9 8,5-8,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,0 b
7. Edition

En

Testoil-ISO 4113

PES 6P 100A 820LS 264

RQ300/1100 PA 327R (1)

supersedes 82

LS 264 Z

RQ 300/1100 PAV 15287 (3)

company Daimler Benz

RQ 300/1100 PA 327 R (2)

engine OM 407 h

132,4kW (180PS) (1 u. 3)

154,5kW (210PS) (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,80-2,90
(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,2-11,8	9,1 - 9,3	0,3(0,6)	12,7-12,8	10,9 - 11,1	
300	7,5-7,7	0,8 - 1,2	0,3(0,5)	7,5-7,7	0,8 - 1,2	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ - 327R (1)

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
500	13,8-14,6	500	14,0	10,2	1145-1160	300	7,6	100	min. 9,6	-	-
1100	Breakaway	1100		4,0	1200-1230			300	7,5-7,7		
1350	0 - 1							370-410	= 2,0		

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	91,0 - 93,0 (89,0 - 95,0)	500	-	-	100	135,0-155,0

Checking values in brackets

10.83

C13

C13

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B. Governor Settings

264Z with RQ-327R (2)

MB 11,0 b

②
-2-

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
500	13,8-14,6	500	14,0	11,7 4,0 1350	1145-1160 1200-1230 0 - 1,0	300	7,6	100	min.9,6	-	-
								300	7,5-7,7		
								370	410 =2,0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At 1145-1160 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1100	109,0 - 111,0 (107,0 - 113,0)	500		-	-	100	135,0 - 155,0 (131,0 - 159,0)

Checking values in brackets

B. Governor Settings

..264 with RQ..PAV 15287 (3)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	10,2 4,0	1160-1170 1200-1230	300	7,5	100	min.9,0		
								300	7,4-7,6		
								370	410 =2,0 mm		

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At 1160-1170 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1100	91,0 - 93,0 (89,0 - 95,0)	500		-	-	100	135,0 - 155,0

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8 d1

1. Edition

En

PE6P100A720 RS 279 Z

RQV 300-1100 PA 246 R

Komb.-Nr. 0 401 846 311

supersedes _

company: Daimler-Benz

engine: OM 355

176,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	11,8-12,0	0,3(0,6)			
300	7,0-7,2	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1125	15,2-17,8	-	-	-	ca. 16	100 300	min. 8,5 7,0-7,2	250 530 820 100	0,9-1,1 3,2-3,7 5,2-5,5 8,1
ca. 66	11,0 4,0 1350	1140-1150 1220-1250 0 - 1,0				300-430 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	118,0-120,0 (116,0-122,0)	1140-1150*	-	-	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

C15

C45

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 b 1

1. Edition

En

PE6P120 A 420 LS 324

RSV 250-1000 P 77407 R

supersedes

-

company

KHD

engine

BA6 M 816

Komb.-Nr. 0 401 876 202

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9±0,1	29,5-29,9 (29,3-30,1)	0,5(0,9)			
250	6,0-6,2	2,0-2,6 (1,7-2,9)	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,6	1000	14,9-15,0
		X = 6,0					250	6,0-6,2	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
Not known. Carry out adjustment on engine.		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

BOSCH

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C16

C16

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 a

5. Edition

En

Testoil-ISO 4113

PES 6 P 100 A 820 LS 351

RQ 300/1100 PA 327 R (1)

supersedes

2.82

company:

Daimler-Benz

OM 407

engine:

176,5 kW(240 PS)

RQ 300/1100 PAV 15287 (2)

Komb.-Nr. 0 402 046 148 (1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC) 7yl. 6; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 100	13,2-13,3	12,2 - 12,4	0,3(0,6)			
300	7,5-7,7	0,6 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..PA 327 R (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
500	14,3-15,1	500	14,7	12,2 4,0 1350	1145-1160 1200-1230 0 - 1,5	300	7,6	100 300 370-410	min. 9,6 7,5-7,7 10=2,0	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1 100	122,0 - 124,0 (120,0 - 126,0)	500	-	-	100	135,0- 155,0

Checking values in brackets

10.83

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B. Governor Settings

..PAV 15287 (2)

MB 11,4 a

- ②

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		②		④		⑤		③			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,0-14,0	600	13,5	12,2	1135-1145	300	7,5	100	min. 9,0	-	-
				4,0	1200-1225			300	7,4-7,6		
								370	410±2,0mm		

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1135-1145 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	
1100	122,0 - 124,0 (120,0 - 126,0)	500	-	-	100	135,0 - 155,0	

Checking values in brackets

Testo 50 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		②		④		⑤		③			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4MB11, 4b
4. Edition

40

En

Testoil-ISO 4113

PES 6 P 100 A 820 LS 351Z
..LS 351Y

RQ 300/1100 PA327R (1)
PA327R (2)

supersedes 4.80
company: Daimler-Benz
engine: OM 407
147kW (200PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,00-3,10
(2,95-3,13)

mm (from BDC)

Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,8-11,9	10,2 - 10,4	0,3(0,6)	11,7-11,8	9,9 - 10,1	
300	7,5-7,7	0,6 - 1,2	0,3(0,5)	7,5-7,7	0,5 - 1,1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

327R mit Z

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12
600	13,8-14,6	600	14,2	10,8	1145-1160	300	7,6	100	min. 9,6	-	-	
				4,0	1200-1230			300	7,5-7,7			
								370-410	2,0			
1100	13,8-14,2							500	0-1			
1350	0 - 1											

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7
"Z" 1100	102,0 - 104,0 (100,0 - 106,0)	500				100	145,0-165,0
						300	6,0 - 12,0

Checking values in brackets

10.83

B. Governor Settings

327R with y MB 11,4 b

-2- (2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
(1)		Setting point		Test specifications		Setting point		Test specifications		(3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
500	13,8-14,6	500	14,2	10,7 4,0 1350	1145-1160 1200-1230 0 - 1,0	300	7,6	100 300 370-	min. 9,6 7,5-7,7 410 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 °F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
(2)		(3a)		(3b)		(6)	
rev/min	cm ³ /~1000 strokes	rev/min	rev/min	rev/min	cm ³ /~1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel mm
"y" 1100	99,0 - 101,0 (97,0 - 103,0)	500	-	-	-	100	130,0 - 150,0 (126,0 - 154,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
(1)		Setting point		Test specifications		Setting point		Test specifications		(3)	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a : mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 °F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
(2)		(3a)		(3b)		(6)	
rev/min	cm ³ /~1000 strokes	rev/min	rev/min	rev/min	cm ³ /~1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel mm

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 c 1
1. Edition

En

PE6P120A 321 RS 359-1
Komb.-Nr. 0 401 856 154

RQV 275-1200 PA 648

supersedes

company RVI

engine MID 06 20 30
141 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
($3,45-3,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,7+0,1	12,9-13,1	0,5(0,9)			
275	5,1-5,3	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1230	15,2-17,8	-	-	-	ca. 10	200	min. 8,2	275	1,3-1,4
ca. 65	9,7 4,0 1450	1245-1255 1335-1365 0-1,0				275-365	275	5,1-5,3	450 800 1200	3,3-3,9 5,7-5,9 8,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2		Rotational speed limitation intermediate speed 2b	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	129,0-131,0 (126,0-134,0)	1245-1255*	-	-	100	155,0-175,0 (151,0-179,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 e

5. Ausgabe

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 364 RQ 300/1100 PA 395 R (1)
 Komb.-Nr. 0 402 046 171 (1) RQ 300/1100 PAV 15396 (2)

supersedes 2.82
 company: Daimier Benz
 engine: OM 407 HA
 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC) Cyl. 6; RW= 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,9+0,1	17,3 - 17,5	0,4(0,8)			
300	6,5-6,7	1,4 - 2,0	0,4(0,7)			
500	- -	0,4 - 5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

..PA 395 R

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
600	19,2-20,8	600	20,0	12,9	1145-1160	300	6,6	100	min. 8,1	1100	13,9-14,0
				4,0	1205-1235			300	6,5-6,7		
				1350	0 - 1,0			390-430	= 2,0	600	13,9-14,1

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145 - 1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel
LDA 1100	0,7 bar 173,0 - 175,0 (170,5 - 177,5)			LDA 500	0 bar 128,0 - 130,0 (125,0 - 133,0)	100 100-220 (80-240)	140,0 - 160,0 (136,0-164,0)

Checking values in brackets

10.83

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B Governor Settings

..PAV 15396 (2) MB 11,4 e -2 (2)

Checking of slider PRG check (1)		Full load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	12,9 4,0	1145-1160 1200-1230	300	6,6	100 300 340-	min.8,0 6,5-6,7 380 = 2,0	1100 600	13,9-14,0 13,9-14,1

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1145-1160 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40° C (104 F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
LDA 1100	0,7 bar 173,0 - 175,0 (170,5 - 177,5)	-	LDA 500	0 bar 128,0 - 130,0 (125,0 - 133,0)	100	140,0 - 160,0 (136,0 - 164,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n : rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)
PES 6 P..LS 364 with.. PA 395 R and .. PAV 15396	0,7	0,48 0,40 0	13,9 - 14,0 13,3 - 13,4 12,7 - 12,9 12,0 - 12,1

Notes

(1) when n =

rev/min and
gauge pressure -

bar (= maximum full-load control rod travel)

En

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 24

1. Edition

En

PES 6 P 110 A 720 LS 375 RQV 250-1100 PA 334 R

Komb.-Nr. 0 402 046 178

supersedes -

company: MAN

engine: D 2566 MTE
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 mm (from BDC) Zyl. 6: RW = 9,0 - 12,0 mm
(2,95 - 3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,1+0,1	14,7-14,9	0,4(0,8)			
250	6,8-7,0	1,0-1,6	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 8,5	200	0,7-0,9
ca. 47	11,1	1140-1150					250	6,8-7,0	500	3,2-3,4
	4,0	1200-1230					350	410=2,0	800	5,0-5,2
	1350	0 - 1,0							1100	7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed (2b) limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery Idle switching point		Torque-control (5) travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	8	9
1100	147,0-149,0 (144,0-152,0)	1140-1150*	-	-	100	225,0-245,0	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,8 f

5. Edition

En

PE 6 P 110 A 720 RS 371 RQ 300/1100 PA 424 R

Komb.-Nr. 0 401 846 398

superseded 4.83

company Daimler-Benz

OM 355 A

engine 206 kW (280 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	16,0-16,2	0,4(0,8)			
300	5,9-6,1	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min mm 1 2		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	mm
650	19,2-20,8	650	20,0	10,7	1145-1160	300	6,2	100	min.8,2	1100	11,7-11,8
VH=	max.46°			4,0	1195-1225			300	6,1-6,3	650	11,7-11,9
				1350	0 - 1,0			410-	450=2,0		

Torque-control travel

on flyweight assembly dimension a =

0

mm

Speed regulation: At

1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3		4	5	6	7
LDA	0,7 bar	-		LDA	0,7 bar	100	140,0-160,0
1100	160,0-162,0 (157,5-164,5)			600	156,0-160,0 (153,0-163,0)		(136,0-164,0)
				LDA	0 bar		
				500	135,0-137,0 (132,0-140,0)		

Checking values in brackets

10.83

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D1

31

D. Adjustment Test for Manifold Pressure Compensator

MB 11,8 f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 371 + RQ..PA 424 R	0,70	0	11,7-11,8
		0,39	11,0-11,1
		0,35	11,5-11,6
			11,2-11,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8k

3. Edition

En

Testoil-ISO 4113

 PE 6 P 110 A 720 RS 371
 Komb.-Nr. 0 401 846 443

RQV 300-1100 PA 551

supercedes 2.81

company: Daimler Benz

engine OM 355 A

205 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (2,75-2,95)
 2,80-2,90 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	16,0 - 16,2	0,4(0,8)			
300	6,1-6,3	1,4 - 2,0	0,4(0,7)			
600/500	--	C, Sp. 4 u.5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8				ca. 12	100	min.8,0	300	1,3-1,4
ca. 66	10,7	1140-1150					300	6,2-6,4	440	2,5-2,9
	4,0	1215-1245					440-500=2,0		1150	8,5
	1350	0 - 1,0				275-330				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 160,0-162,0 (157,5-164,5)	1140-1150*	LDA 600	0,7 bar 156,0-160,0 (153,0-163,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 135,0-137,0 (132,0-140,0)	100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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D. Adjustment Test for Manifold Pressure Compensator

MB 11,8 k

- 2 -

Test at n = 500 rev/min ^{decreasing}
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod Travel ^{diminution} <u>difference</u>
			mm (1)
PE 6 P..RS 371 + RQV..PA 551	0,7		11,7 - 11,8
		0,39	11,5 - 11,6
		0,35	11,2 - 11,3
		0	11,0 - 11,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 q
7. Edition

En

PES 6 P 110 A 720 LS 375 RQ 250/1100 PA 335 DR
Komb.-Nrn. 0 402 046 179, 0 402 046 211,
0 402 046 175

superseries 7.83

company: MAN

engine: D 2566 MT(F)
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC Zyl. 6; RW = 9,0 - 12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH =	19,2-20,8 max. 46°	600	20,0	11,4 4,0 1350	1145-1160 1190-1220 0-1,0	250	7,4	100 min. 8,9 250 7,3-7,5 355-395 = 2,0		1100 700 870 970	12,4-12,5 13,3-13,4 13,0-13,2 12,5-12,8

Torque-control travel
on flyweight assembly dimension a =

0,2

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test on temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3		rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 147,0-149,0 (143,5-151,5)			LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)			LDA 500	0 bar 110,0-113,0 (107,5-115,5)		

Checking values in brackets

10.83

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS375 + RQ..PA335DR	0,70	0 0,20 0,32	13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 1
3. Edition

En

PES 6 P 110 A 720 LS 375 RQV 250-1100 PA 373 DR
Komb.-Nr. 0 402 046 180

supersedes 11.82

company: MAN

engine: D 2566 MTF
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Zyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	2,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 13	100	min. 8,9	325	1,7-2,2
ca. 65	11,4	1140-1150					250	7,3-7,5	900	6,2-6,4
	4,0	1225-1255					520	580=2,0	1100	8,0-8,2
	1350	0 - 1,0				390-510				

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	cm ³ /1000 strokes 4	rev/min 5	cm ³ /1000 strokes 6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
LDA	0,7 bar	1140-1150*	LDA	0,2 bar	100	225,0-245,0	1100	12,4+0,1	
1100	146,0-149,0 (143,5-151,5)		500	123,0-127,0 (120,0-130,0)		(221,0-249,0)	700	13,3+0,1	
LDA	0,7 bar		LDA	0 bar	250	10,0-15,0	850	13,0+0,2	
	157,0-161,0 (154,0-164,0)		500	110,0-113,0 (107,5-115,5)		(7,5-17,5)	950	12,5+0,3	

Checking values in brackets

* 1 mm less control rod travel than col. 2
10.83

Testoil-ISO 4113

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D7

D7

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 375 + RQV..PA 373 DR	0,70	0 0,20 0,32	13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 4

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS375 RQV 750 PA377R
Komb.-Nr. 0 402 046 181

supersedes 79
company A N
engine D2566 MTE, 142 kW
Nr.7009

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC) Zyl. 6; RW= 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5-12,6	15,2 - 15,4	0,4(0,8)			
250	6,8-7,0	1,1 - 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
-	11,5 4,0 900	750-755 755-785 0 - 1,0	-	-	-	-	-	-	750	4,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)	Torque-control travel (5) Control rod travel mm		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
700	152,0-154,0 (149,5-156,5)	750-755*	-	-	100	215,0-235,0 (211,0-239,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

D9

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 19

1. Edition

En

PES 6 P 110 A 720 LS 375 RQ 250/1100PA 658

Komb.-Nr. 0 402 046 251
0 402 046 253

supersedes -

company: MAN

engine: D 2566 MT (F)
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1+0,1	14,7-14,9	0,4(0,8)			
250	6,8-7,0	1,0-1,6	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min 1		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
600	19,2-20,8	600	20,0	11,1	1145-1160	250	6,9	100	min.8,5	1100	12,1-12,2
VH = max. 46°				4,0	1200-1230			250	6,8-7,0	1000	12,3-12,5
				1350	0-1,0			370-410	= 2,0	800	12,6-12,8
										700	12,8-12,9

Torque-control travel
on flyweight assembly dimension a = 0,3 mmSpeed regulation: At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	8
LDA 1100	0,7 bar 147,0-149,0 (144,0-152,0)	-		LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)			LDA 500	0 bar 111,0-113,0 (108,0-116,0)		

Checking values in brackets

10.83

D10

D10

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 19

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS375 + RQ..PA658	0,32		12,3 - 12,4
		0,70	12,8 - 12,9
		0	10,9 - 11,0
		0,20	11,4 - 11,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 20
1. Edition

En

PES 6 P 110 A 720 LS 375

RQ 250/1050 PA 658-1

Komb.-Nr. 0 402 046 254

0 402 046 255

supersedes:

company: MAN

D 2566 MT (F)

engine: 202 kW (275 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1
(2,95-3,15)

mm (from BDC Zyl. 6; RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,3+0,1	15,0-15,2	0,4(0,8)			
250	7,0-7,2	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4				Test specifications Control rod travel mm 8				Control rod travel mm 12	
600	19,2-20,8	600	20,0	11,3	1095-1110	250	7,1	100	min. 8,7	1050	12,3-12,4
VH = max. 46°				4,0	1155-1185			250	7,0-7,2	700	13,0-13,1
				1300	0-1,0			360-400	= 2,0	850	12,8-13,0
										950	12,4-12,7

Torque-control travel
on flyweight assembly dimension a =

0,3

mm

Speed regulation: At 1095-1110 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 1050	0,5 bar 150,0-152,0 (147,0-155,0)	-		LDA 500	0,15 bar 123,0-127,0 (120,0-130,0)	100	215,0-235,0
LDA 700	0,5 bar 157,0-171,0 (154,0-174,0)			LDA 500	0 bar 111,0-123,0 (108,0-126,0)		

Checking values in brackets

10.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 20

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS375 + RQ..PA 658-1	0,15	0,50 0 0,24	11,5 - 11,6 13,0 - 13,1 10,9 - 11,0 12,1 - 12,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 21

1. Edition

En

PES 6 P 110 A 720 LS 375 RQ 300/1100 PA 658-2
Komb.-Nr. 0 402 046 256

supersedes -

company: MAN

engine: D 2566 MLUM/US
227 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0 - 3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) $\begin{matrix} 3,1 \\ 6 \end{matrix}$; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	16,0-16,3	0,4(0,75)			
300	7,6-7,8	1,9-2,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8	600	20,0	12,1	1145-1160	300	7,7	100	min. 9,2	1100	13,1-13,2
VH =	max. 46°			4,0	1190-1220			300	7,6-7,8	750	13,9-14,0
				1350	0-1,0			360-400	= 2,0	870	13,7-13,9
										970	13,2-13,5

Torque-control travel on flyweight assembly dimension a = 0,3 mm 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA 1100	0,9 bar 160,0-163,0 (157,5-165,5)	-		LDA 600	0,3 bar 146,0-150,0 (143,0-153,0)	100	215,0-235,0 (211,0-239,0)
LDA 750	0,9 bar 174,0-178,0 (171,0-181,0)			LDA 500	0 bar 119,0-122,0 (116,0-125,0)	300	19,0-24,0 (16,5-26,5)

Checking values in brackets

10.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 21

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)	diminution difference
PES6P..LS375 RQ..PA 658-2	0,90	0 0,30 0,42	13,9 - 14,0 11,6 - 11,7 12,6 - 12,7 13,1 - 13,6	

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 22

1. Edition

En

PES 6 P 110 A 720 LS 375

RQ 300/1100 PA 658-3

Komb.-Nr. 0 402 046 257

supersedes -

company:

engine:

MAN

D 2566 MTUM

206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1
(2,95-3,15)

mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,3+0,1	16,1-16,3	0,4(0,8)			
300	7,4-7,6	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH =	19,2-20,8 max. 46°	600	20,0	12,3 4,0 1350	1145-1160 1215-1245 0-1,0	300	6,0	100 300 360-400 = 2,0	min. 7,5 5,9-6,1	1100 700 910	13,3-13,4 13,9-14,0 13,5-13,7

Torque-control travel
on flyweight assembly dimension a =

0,4

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 161,0-163,0 (158,0-166,0)	-	LDA 500	0,2 bar 124,0-128,0 (121,0-131,0)	100	215,0-234,0
LDA 700	0,7 bar 171,0-175,0 (168,0-178,0)		LDA 500	0 bar 117,0-119,0 (114,0-122,0)	300	11,0-17,0

Checking values in brackets

10.83

D16

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BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 22 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6P...LS375 + RQ...PA 658-3	0,47	0,70 0 0,20	13,7 - 13,8 13,9 - 14,0 11,7 - 11,8 11,9 - 12,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 r 4

1. Edition

En

PE 6 P 110 A 320 RS 375 RQV 250-1100 PA 674

Komb.-Nr. 0 402 046 282

supersedes-

company: MAN

engine: D 2566 MTE
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC) 7v1 - 6: RW = $9,0 - 12,0$ mm
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	12,8+0,1	16,0-16,2	0,4(0,8)			
250	6,9-7,1	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 13	100 250 340	min. 8,5 6,9-7,1 400=2,0	300 800 1100	1,4-1,7 5,0-5,2 7,9
ca. 46	10,5 4,0 1350	1140-1150 1205-1235 0 - 1,0				3a				

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery ⑥ idle switching point		Torque-control travel ⑤ Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 800	0,7 bar 160,0-162,0 (157,5-164,5)	1140-1150*	LDA 500	0,17 bar 122,0-126,0 (119,0-129,0)	100	215,0-235,0 (211,0-239,0)	800	12,8+0,1
LDA 1100	0,7 bar 136,0-140,0 (133,0-143,0)		LDA 500	0 bar 98,0-100,0 (95,5-102,5)	250	11,0-17,0 (8,5-19,5)	1100 900 1000	11,5+0,1 12,4+0,2 11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 r 4 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..LS 375 + RQ..PA 674	0,70	0 0,28 0,11	12,8-12,9 10,2-10,3 12,1-12,2 10,7-11,0

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 b1

1. Edition

En

PE 6 P 120 A 320 RS 377 RQV 275-1200 PA 425-2
Komb.-Nr. 0 401 846 489

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes-

company: RVI

engine MIDS 062030
158 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 - 2,9$ mm (from BDC) RW = 9,0 - 12,0 mm
(2,75-2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,6+0,1	15,0-15,2	0,5(0,9)			
275	5,4-5,6	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,8	-	-	-	ca. 10	200	min.8,5	275	1,0-1,2
ca.64	11,6	1245-1255					275	5,4-5,6	425	3,0-3,5
	4,0	1375-1405							900	5,6-5,9
	1500	0 - 1,0				275-375			1200	7,6
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1200	0,7 bar 150,0-152,0 (147,0-155,0)	1245-1255*	LDA 350	0 bar 51,0-55,0 (48,0-58,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

D. Adjustment Test for Manifold Pressure Compensator

BET 8,8 b 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 377 + RQV..PA 425-2	0,70	0 0,20 0,16	12,6-12,7 11,1-11,2 12,2-12,3 11,4-11,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps and Governors

40

 ② P 001/4 MAN 11,1 q 25
1. Edition

En

PES 6 P 120 A 720 LS 388 Z RQ 250/1100 PA 509

supersedes

company MAN

engine: D 2566 MK

Komb.-Nr. 0 402 046 246

 Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Zyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,3+0,1	17,9-18,1	0,5(0,9)			
250	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	10,3	1145-1160	250	6,5	100	min. 7,9	1100	11,3-11,4
VH =	max. 46 °			4,0	1185-1215			250	6,4-6,6	750	12,5-12,7
				1350	0 - 1,0			335-375	= 2,0	875	12,3-12,5
										990	11,5-11,8

Torque-control travel
on flyweight assembly dimension a = 0,5 mmSpeed regulation: At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
LDA 1100	0,7 bar 179,0-181,0 (176,0-184,0)	-	LDA 650	0,7 bar 191,0-197,0 (188,5-200,0)	100	205,0-225,0 (201,0-229,0)
LDA 750	0,7bar 197,0-203,0 (194,0-206,0)		LDA	0 bar 103,0-105,0 (100,0-108,0)		

Checking values in brackets

10.83

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 925

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 Z + RQ.. PA 509	0,70	0 0,33 0,43	12,4-12,5 9,4-9,5 10,9-11,0 11,4-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 f

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 390 RSV 200-1200 P1/305 R

Komb.-Nr. 0 401 876 238

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 10.79

company Volvo-Penta

engine TMD 70 C, TD 70 G

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 mm (from BD/C)
(2,95-3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	11,1-11,2	10,1 - 10,3	0,4(0,8)			25±0,1 **
200	6,3-6,5	1,9 - 2,9	0,3 (0,6)			(max. 2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 27	200	5,9	-	-
	x = 4,0									
ca. 68	1240-1250=10,1						200	5,8-6,0		
2a	1285-1315=4,0						320-380 =2,0			
	1400=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1200	101,0 - 103,0 (98,0 - 106,0)	1240-1250*	-	-	-	200	19,0-29,0	**	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

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D24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e

7. Edition

En

PE6P110 A 720 RS 393

RQV 200-1200 PA 467

supersedes 6.83

company: Scania

engine DN 801

Komb.-Nr. 0 401 846 424

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel injection Pump Settings

 Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	8,7-8,9	0,5(0,7)			2,5 [±] 0,1
225	6,9-7,1	1,1-1,5	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 16	100	min. 8,4	150	0,5-0,8
ca. 61	11,0 4,0 1500	1240-1250 1365-1395 0 - 1,0					225 440-500=	6,9-7,1 2,0	500 850 1200	3,6-4,2 5,8-6,0 8,2
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	87,0-89,0 (85,0-91,0)	1240-1250*	1200	99,5-102,5 (97,0-105,0)	100	140,0-190,0 =20,0-21,0 mm RV	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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E1

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e 1

4. Edition

En

PE6P110A 720 RS 393

RQV 250-1200 PA469

supersedes 6.83

company: Scania

engine: DN 801

Komb.-Nr. 0 401 846 423

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0±0,1	8,7-8,9	0,5(0,7)			2,5 ± 0,1 (2,2-2,9)
225	6,9-7,1	1,1-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 13	100	min. 8,4	200	0,7-0,9
ca. 51	11,0 4,0 1450	1240-1250 1325-1355 0 - 1,0					225 335-395=2,0	6,9-7,1	500 800 1200	3,0-3,5 5,1-5,3 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	87,0-89,0 (85,0-91,0)	1240-1250*	1200	99,5-102,5 (97,0-105,0)	100	140,0-190,0 =20,0-21,0 mm RH	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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E2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 8,0 n 1
2. Edition

En

PE 6 P 110 A 720 RS 393 RQ 750 PA 528

Kom.-Nr. 0 401 846 479

supersedes 83

company Scania
engine: DN 8 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	9,0-9,2	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider FRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
-	-	-	-	11,0 4,0 850	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: 750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
700	90,0-92,0 (88,0-94,0)	-	-	-	-	100	140,0-190,0 = 20,0-21,0 mm RW

Checking values in brackets

10 .83

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 8,0 n
2. Edition

En

PE 6 P 110 A 720 RS 393 RQ 900 PA 528
Komb.-Nr. 0 401 846 480

supersedes 6.83
company: Scania
engine: DN 8 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0 - 3,1}{(2,95 - 3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	9,4-9,6	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in:

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	11,0 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 900-905 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
850	94,0-96,0 (92,0-98,0)	-	-	-	-	100	140,0-190,0 = 20,0-21,0 mm RW

Checking values in brackets

10.83

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 17,6 b

2. Edition

En

supersedes 1.82

company MWM

engine D, DT, TBD 232 V 12

Testoil-ISO 4113

PE 12 P 110 A 520/5 RS 408 RSUV 300-750 P 5 A 320 R

Komb.-Nr. 0 401 870 069

1 - 12 - 9 - 4 - 5 - 8 - 11 - 2 - 3 - 10 - 7 - 6

je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8-2,9
(2,75-2,95)

mm (from BDC) RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,3+0,1	13,5 - 13,8	0,4(0,75)			
300	7,2-7,4	2,1 - 2,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 21	300	6,8	750	12,3+0,1
	x = 4,0						300	7,2-7,4	450	12,3+0,1
ca. 55	11,3	790-800					320-380=2,0 mm		320	13,5+0,6
⑤	4,0	795-825								
	960	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				mm RW		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	rev/min 9	mm 9
750	135,0-138,0 (132,5-140,5)	790-800 *	-	-	100	19,5-21,0	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 17,6 b 1
2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 520/5 RS 408 RSUV 300-1150 POA 324 DR
1-12-9-4-5-8-11-2-3-10-7-6
je 30 ° ± 0,5 ° (± 0,75 °)
Komb.-Nr. 0 401 870 070

supersedes 1.82

company MWM

engine D, DT,) TBD 232 V 12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC) RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,2+0,1	13,6 - 13,9	0,4(0,75)			
300	7,0-7,2	1,4 - 2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	300	6,6	-	-
	x = 4,0						300	7,0-7,2		
							405-465	2,0 mm		
⑤ ca. 61	11,2	1190-1200								
	4,0	1235-1265								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1150	136,0-139,0 (133,5-141,5)	1190-1200*	-	-	100	19,5-21,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g

5. Edition.

En

PE 6 P 110 A 320 RS 413 RQV 250-1200 PA 499
Komb.-Nr. 0 401 846 432

superseded 2.82

company Volvo

engine: TD 70 F
174 kW (237 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC) = RW 9,0-12,0 mm
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	13,0-13,2	0,4(0,8)			2,5 ±0,1 (2,2-2,9)
250	5,2-5,4	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100 250	min. 6,7 5,2-5,4	200 530 870 1200	0,6-0,9 3,2-3,6 5,8-6,0 8,2
ca. 62	11,4 4,0 1500	1240-1250 1370-1400 0 - 1,0				300-410 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min	cm³/1000 strokes	rev/min ④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 130,0-132,0 (127,0-135,0)	1240-1250 *	LDA 700	0 bar 83,0-86,0 (80,5-88,5)	100	170,0-210,0 (166,0-214,0) = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

E7

E7

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 g

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P .. RS 413 + RQV..PA 499	0,51	0,75 0 0,30	12,0-12,1 12,4-12,5 9,8-9,9 10,7-10,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a

4. Edition

En

Testoil-ISO 4113

PES 6 P 120 A 320 RS 419 RQV 250-1100 PA 540

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes 2.82

company: RVI

engine: MIDS 062045

195 kW (265 PS)

Komb.-Nr. 0 402 046 200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,8-2,9 (2,75-2,95)		mm (from BDC)		Port closing mark 10,5° after port closing cylinder 1	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)	
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm	
1	2	3	4	2	3	6	
1 100	8,8-8,9	15,9 - 16,1	0,5 (0,9)				
250	4,3-4,5	1,7 - 2,3	0,8 (1,2)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1260	15,2-17,8	-	-	-	ca. 10	200	min.5,5	200	0,7-1,0
ca. 60	7,8	1 140-1150					250	4,3-4,5	500	3,5-3,6
	4,0	1 200-1230							800	4,8-4,9
	1350	0-1,0				280-400			1 100	6,9
						③a				

Torque control travel 9 = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational speed		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop	Test oil temp 40°C (104°F)	limitation	intermediate speed	high idle speed		idle switching point		travel	Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4a	4	5	6	7	8	9
LDA	0,7 bar	1 140-1 150*		LDA	0 bar	100	19,5-21,0	-	-
1 100	159,0-161,0 (156,0-164,0)			1 100	131,0-133,0 (128,0-136,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

E9

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E9

D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure bar	Gauge pressure - bar	mm (1)
PES 6 P..RS 419 with..PA 540	0,7	0 0,23 0,19	8,8 - 8,9 7,3 - 7,4 8,4 - 8,5 7,7 - 7,9

Notes

(1) when n = rev/min and gauge pressure - bar (- maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

NRP 001/4 MAN 11,4 a 1

2. Edition

En

PES 6 P 120 A 320 LS 429

RQ 250/1100 PA 659

supersedes 783

company MAN

engine: D 2566 MKUL
235 kW (320 PS)

Komb.-Nr. 0 402 046 264

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Zyl. 6 - RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,9+0,1	22,0-22,4	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,4	1145-1160	250	7,6	100	min. 7,8	1100	11,4-11,5
VH = 46°				4,0	1180-1210			250	6,2-6,4	750	12,9-13,0
				1300	0 - 1,0			3 5-3 5 = 2,0		925	12,5-12,7
										1005	11,7-12,0

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min-1

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 750	1,0 bar 220,0-224,0 (217,0-227,0)	-		LDA 500	0,29 bar 138,0-144,0 (135,0-147,0)	100	215,0-235,0
LDA 1100	1,0 bar 185,0-191,0 (182,0-194,0)			LDA 500	0 bar 115,0-119,0 (112,0-122,0)		

Checking values in brackets

10 .83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 1 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6 P.. LS 429 + RQ .. PA 659	1,0	0 0,29 0,58	12,9 - 13,0 9,6 - 9,7 10,5 - 10,6 12,2 - 12,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 9,5 a 5
2. Edition

En

PES 5 P 110 A 820 LS 434 RSV 350-1100 PO/485
- 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)
Komb.-Nr. 0 402 075 002

superseded 1.83
company Daimler-Benz
engine OM 409
137 kW (186 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 mm (from BDC)
(2,95-3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1080	11,4±0,1	12,0-12,2	0,4 (0,8)			
350	7,7-7,9	1,1-1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 27	350	7,8	-	-
	x = 2,25						350	7,7-7,9		
							380-440	= 2,0		
ca. 48	10,4	1120-1130						**		
2a	4,0	1190-1220								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to .) rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
1080	120,0-122,0 (117,0-125,0)	1120-1130*	-	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

** Set idle-speed auxiliary spring at control-rod travel = 2,0 mm

10.83

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E13

E13

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 9,5 a
4. Edition

Testoil-ISO 4113

PES 5 P 110 A 820 LS 434
Komb.-Nr. 0 402 045 022
1 - 2 - 5 - 4 - 2

RQ 300/1100 PA 327-3
je $72^{\circ} \pm 0,5^{\circ}$ (0,75°)

supersedes 1.83
company Daimler-Benz
OM 409
engine 141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

$3,00-3,10$
(2,95-3,15)

mm (from BDC) Zyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,4±0,1	12,0 - 12,2	0,4(0,8)			
300	8,0-8,2	1,2 - 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,8-14,6	600	14,2	10,5 4,0	1145-1160 1175-1205	300	7,1	100 300	min.10,0 7,0-7,2	-	-
									375-415=2,0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1145 - 1160 min¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
1100	120,0 - 122,0 (117,0 - 125,0)	-	600	102,0 - 106,0 (99,0 - 109,0)	100	130,0 - 150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 IHC 13,4f

1. Edition

En

PES 6 P 110 A 420 LS 3008 RSV 350-1100 PO/382 DR

Komb.-Nr. 0 402 076 701

supersedes

company

engine

IHC

DTI 817 C

Values only apply to test nozzle-and-holder assembly
1 688 901 018 and fuel-injection test tubing 9 681 230 713

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	15,4+0,1	24,2-24,4	0,8			
350	5,6-5,8	2,1- 3,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	350	5,5	1080	15,4-15,5
							100	20,0-21,0	750	16,3-16,4
							200	12,8-21,0	500	16,3-16,4
							300	8,6-10,1		
ca. 44	1100	15,6-16,2					350	5,5		
2a	1200	6,0- 9,2					410	1,3- 2,0		
	1280	1,3- 2,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		5 Starting fuel delivery		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
LDA 1100	1,2 bar 242,0-244,0 (240,0-246,0)	1135-1145*	LDA 700	1,2 bar 281,0-287,0 (279,0-289,0)	100	265,0-305,0	350	5,5	
			LDA 500	0 bar 146,0-154,0 (144,0-156,0)	350	21,0- 31,0			
					1225	30,0- 40,0			

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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D. Adjustment Test for Manifold Pressure Compensator

IHC 13,4f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS3008 +RSV ..PD/382DR	0,10-0,17	0,80-0,93	Beginn Ende

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 a 1

1. Edition

En

PE 8 P 110 A 320 LS 3802 RQ 300/1150 PA 437-3

Komb.-Nr. 0 401 848 755

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -

company: Daimler-Benz

engine: OM 422

184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) Zyl. 8
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	11,5-11,7	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	10,0 4,0 1350	1195-1210 1230-1260 0-1,0	300	8,1	100 300 420-460 = 2,0	min.9,5 8,0-8,2 2,0	1150 600 1000	11,0-11,1 11,3-11,5 11,2-11,3

Torque-control travel
on flyweight assembly dimension a =

0,2

mm

Speed regulation: At 1195-1210 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	115,0-117,0 (112,5-119,5)	600	600	96,0-100,0 (93,0-103,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

9.83

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E17

E47

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 a 2

1. Edition

En

PE 8 P 110 A 320 LS 3802 RQV 300-1150 PA 486-3
Komb.-Nr. 0 401 848 756
1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company: Daimler-Benz

engine: OM 422

184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	11,5-11,7	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 16	100 300	min. 9,5 8,0-8,2	250 550 850 1150	1,0-1,2 3,4-3,7 4,9-5,3 7,7
ca. 64	10,0 4,0 1400	1190-1200 1240-1270 0-1,0				350-700				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b		Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	115,0-117,0 (112,5-119,5)	1190-1200*		600	96,0-100,0 (93,0-103,0)	100	140,0-160,0 (136,0-164,0)	1150 600 950 1050	11,0+0,1 11,3+0,2 11,2+0,2 11,2+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

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E18

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 d

5. Edition

En

PE 6 P 110 A 320 LS 3805 RSV 650-1150 P 1/820

Komb.-Nr. 0 401 876 717

1 - 6 - 3 - 5 - 2 - 4

0 - 75-120-195-240-315⁰ +0,5⁰ (+ 0,75⁰)

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersede 10.82

company Daimler-Benz

engine OM 421

155 kW (211 PS)

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0 - 4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BD Zyl. 6; RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,3+0,1	11,9-12,1	0,4(0,8)	12,3+0,1	13,5-13,7	
650	6,4-6,6	2,3-2,9	0,4(0,7)	6,4-6,6	2,3-2,9	
	* with return throttle (1)			* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 30	650	6,5	-	-
	x = 3,5									
ca. 57	11,3	1160-1170					650-715	2,0		
2a	4,0	1185-1205								
	1300	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(1) 1130	119,0-121,0 (116,0-124,0)	1160-1170*	-	-	-	100	130,0-150,0	650	6,5
Speed difference between 1 mm regulated and control-rod travel 4 mm at n = 25-35 min ⁻¹									

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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E19

E49

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 30	650	6,5	-	-
	$x = 3,5$									
ca. 57	11,3	1160-1170					650-715	2,0		
	4,0	1185-1205								
②a	1300	0,3 - 1,7								

Drehzahl Differenz zwischen 1 mm abgeregelt und RW 4 mm = 25-35 min⁻¹**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(2) 1130	135,0-137,0 (132,5-139,5)	1160-1170*	-	-	-	100	140,0-160,0 (136,0-164,0)	0 - (0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113Speed difference between 1 mm regulated and control-rod travel 4 mm at n = 25-35 min⁻¹

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,0 c 3

2. Edition

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-8
Komb.-Nr. 0 401 846 755

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

See Service Information VDT-I-401/102

supersedes 3.82
company: Daimler-Benz
OM 421
engine: 148 kW (201 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,6+0,1	12,7-12,9	0,4(0,8)	12,6+0,1	13,3-13,5	
300	8,5-8,7	1,6-2,2	0,4(0,7)	8,3-8,5	1,6-2,2	
	* with return throttle (1)			* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,2-14,0	650	13,6	11,6 4,0 1350	1195-1210 1240-1270 0-1,5	300	7,1	100 300 400-440 = 2,0	min. 8,5 7,0-7,2	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7	
(1) 1150	127,0-129,0 (124,0-132,0)	600	600	117,0-121,0 (114,0-124,0)	100	130,0-150,0	

Checking values in brackets

9.83

Testoil-ISO 4113

E21

E21

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B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		① Setting point		④ Test specifications		⑤ Setting point		⑤ Test specifications		③ Control rod	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
650	13,2-14,0	650	13,6	11,6 4,0 1350	1195-1210 1240-1270 0-1,5	300	7,1	100 300 400-440 = 2,0	min. 8,5 7,0 - 7,2	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At 1195-1210 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		② Control rod stop		③a Fuel delivery characteristics		③b Starting fuel delivery idle speed		⑥ Control rod travel	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm		
1	2	3		4	5	6	7		
(2) 1150	133,0-135,0 (130,5-137,5)	600		-	-	100	130,0-150,0 (126,0-154,0)		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		① Setting point		④ Test specifications		⑤ Setting point		⑤ Test specifications		③ Control rod	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		② Control rod stop		③a Fuel delivery characteristics		③b Starting fuel delivery idle speed		⑥ Control rod travel	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm		
1	2	3		4	5	6	7		

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,0 n

2. Edition

En

PE6P110A320LS3805

RQ 900 PA 310R

Komb.-Nr. 0 401 846 740

supersedes 5.81
company Daimler-Benz
OM 421
engine 135 kW (184 PS)

1 - 6 - 3 - 5 - 2 - 4

0 - 75-120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) $\pm 1,6$; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	14,1+0,1	14,3-14,5	0,4(0,8)	14,1+0,1	14,6-14,8	
300	8,4-8,6	1,1-1,7	0,4(0,7)	8,4-8,6	1,4-3,0	
	* with return throttle (1)			* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
-	-	-	-	13,1 4,0 1000	895-900 950-960 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

895-900 mm
1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2		Control rod travel mm 3a		cm ³ /1000 strokes 5		Control rod travel mm 3b
(1) 850	143,0-145,0 (140,0-148,0)	-	-	-	-	100	130,0-150,0

Checking values in brackets

9.83

Testoil-ISO 4113

B. Governor Settings

MB 11,0 n

-2-

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	13,1 4,0 1000	895-900 950-960	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 895-900 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
Test oil temp. 40°C (104°F)		Idle speed		Control rod travel		Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	mm
1	2	3	4	5	6	7	
(2) 850	146,0-148,0 (143,5-150,5)	-	-	-	100	140,0-160,0 (136,0-164,0)	

Checking values in brackets

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
Test oil temp. 40°C (104°F)		Idle speed		Control rod travel		Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	mm
1	2	3	4	5	6	7	

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,0 g

3. Edition
En

PE6P 110A 320 LS 3805

RQ 1050 PA 310 R

supersedes 7.81

company: Daimler-Benz

engine OM 421

148 kW (201 PS)

Komb.-Nr. 0 401 846 739

1 - 6 - 3 - 5 - 2 - 4

0 -75-120-195-240-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDE) $2y1. 6;$ RW = $9,0-12,0$ mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,4+0,1	14,4-14,6	0,4(0,8)	13,4+0,1	14,6-24,8	
300	7,9-8,1	1,1-1,7	0,4(0,7)	7,9-8,1	1,4-2,0	
	* with return throttle (1)			* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	rev/min 11	Control rod travel mm 12
-	-	-	-	12,4 4,0	1045-1050 1105-1115	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1045-1050 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1000	144,0-146,0 (141,0-149,0)	-	-	-	100	130,0-150,0

Checking values in brackets

9.83

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B. Governor Settings

MB 11,0 q

-2-

②

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		① Setting point		④ Test specifications		⑤ Setting point		⑤ Test specifications		③ Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	12,4	1045-1050	-	-	-	-	-	-
				4,0	1105-1115						

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1045-1050 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load delivery on governor control lever Test oil temp 40°C (104°F)		③a Control rod stop		③b Fuel delivery characteristics		⑥ Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	
(2)		-	-	-	100	140,0-160,0	
1000	146,0-148,0 (143,5-150,5)					(136,0-164,0)	

Checking values in brackets

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		① Setting point		④ Test specifications		⑤ Setting point		⑤ Test specifications		③ Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load delivery on governor control lever Test oil temp 40°C (104°F)		③a Control rod stop		③b Fuel delivery characteristics		⑥ Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 c 2

2. Edition

En

PE6P110A 320LS 3805
Komb.-Nr. 0 401 846 748

RQV 300-1150PA 524-4

supersedes 11.82
company: Daimler-Benz
engine: OM 421
159 kW (216 PS)

1 - 6 - 3 - 5 - 2 - 4

0 - 75-120-195-240-315° $\pm 0,5^\circ (\pm 0,75^\circ)$

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) $3,95-4,15$ mm (from BDC) $1. 6; RW=9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)	12,5+0,1	13,4-13,6	
300	8,3-8,5	1,2-1,8	0,4(0,7)	8,3-8,5	1,2-1,8	
* with return throttle (1)				* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 19	100	min. 10,0	250	1,0-1,2
ca. 65	11,5	1190-1200					300	8,3-8,5	550	3,4-3,7
	4,0	1240-1270							850	4,9-5,3
	1400	0-1,0				330-730			1150	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150 (1)	128,0-130,0 (125,0-133,0)	1190-1200*	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

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B. Governor Settings

MB 11,0 c 2

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 19	100	min. 10,0	250	1.0-1,2
							300	8,3-8,5	550	3,4-3,7
									850	4,9-5,3
									1150	7,7
ca. 65	11,5	1190-1200								
	4,0	1240-1270								
	1400	0-1,0								
						330-730				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150 (2)	134,0-136,0 (131,5-138,5)	1190-1200*	600	116,0-120,0 (113,0-123,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

[illegible]

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		(2b) Rotational-speed limitation intermediate speed	(5a) Fuel delivery characteristics high idle speed (5b)		(6) Starting fuel delivery idle switching point	(5) Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7

Checking values in brackets

* 1 mm less control rod travel than col 2

En

f'4

F4

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 g 2

1. Edition

En

PE 8 P 120 A 320 LS 3807 RQ 300/1150 PA 546-1
 1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
 Values only apply to test nozzle-and-holder assembly
 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -
 company: Daimler-Benz
 engine: OM 422 LA
 276 kW
 Komb.-Nr. 0 401 848 753

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Cy1.8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
750	-	C, col.4-5	(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,0	1195-1210	300	4,9	100	min.6,5	1150	12,0-12,1
VH =	max. 46°			4,0	1235-1265			300	4,8-5,0	750	12,4-12,5
				1350	0 - 1,0			345	385=2,0mm	900	12,2-12,4

Torque-control travel on flyweight assembly dimension a = 0,23 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes/mm 7
LDA	0,7 bar	-		LDA	0,7 bar	100	140,0 - 160,0
1150	182,0-184,0 (179,0-187,0)			750	195,0-198,0 (192,0-201,0)		(136,0 - 164,0)
				LDA	0 bar		
				500	141,0-143,0 (138,0-146,0)		

Checking values in brackets

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F5

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 g 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807 + RQ..PA 546-1	0	0,40 0,55	10,5 - 10,7 11,1 - 11,2 12,2 - 12,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 e
4. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 LS 3810 RQV 350-1150 PA 553
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

1 - 6 - 3 - 5 - 2 - 4
0 - 75 - 120 - 195 - 240 - 315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 2.82

company Daimler-Benz

engine OM 421 A

198 kW (269 PS)

Komb.-Nr. 0 401 846 736

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) $(3,95 - 4,15)$						
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1130	11,5+0,1	17,2 - 17,4	0,5(0,9)			
350	4,6-4,8	1,5 - 2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 12	100	min. 6,5	300	1,0-1,2
ca. 64	10,5	1170-1180					350	4,6-4,8	580	3,6-3,8
	4,0	1245-1275							870	5,4-5,6
	1400	0 - 1,0				385-505			1150	8,2
						3a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational speed	Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop		limitation	high idle speed		idle		travel	
Test oil temp. 40°C (104°F)		intermediate speed			switching point			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1130	172,0-174,0 (169,0-177,0)	1170-1180*	-	-	100	160,0-180,0 (156,0-184,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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F7

F7

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 m

2. Edition

En

PE 8 P 110 A 320 LS 3813 RQV 350-1150 PA 378
Komb.-Nr. 0 401 848 740
1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° +0,5° ($\pm 0,75^\circ$)

See Service Information VDT-I-401/102

supersedes 5.81

company: Daimler-Benz

engine OM 422

206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke						
4,0 - 4,1 (3,95-4,15)			mm (from BDC) 7yl. 8: RW = 9.0-12.0 mm			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery *	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm	cm³/100 strokes	mm
1	2	3 *	4	2	3	6
1130	12,6+0,1	12,3-12,5	0,4(0,8)	12,6+0,1	13,1-13,3	
350	8,2-8,3	1,2-1,7	0,4(0,7)	8,2-8,3	1,4-1,8	
* with return throttle (1)					* without return throttle (2)	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 14	100	min. 8,7	300	0,6-0,9
ca. 62	11,6	1180-1190					350	7,0-7,2	580	3,6-3,8
	4,0	1280-1305							870	5,2-5,3
	1400	0 - 1,0				375-485			1150	7,6
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) 1130	123,0-125,0 (120,0-128,0)	1180-1190*	-	-	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

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F8

F8

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 14	100	min. 8,7	300	0,6-0,9
ca. 62	11,6	1180-1190					350	7,0-7,2	580	3,6-3,8
	4,0	1280-1305							870	5,2-5,3
	1400	0 - 1,0				375-465			1150	7,6
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2) 1130	131,0-133,0 (128,5-135,5)	1180-1190*	-	-	100	140,0-160,0 (136,0-164,0)	-		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 MB 11,0 k
2. Edition

En

PE 6 P 110 A 320 LS 3814 RSV 350-1150 P 0/810
Komb.-Nr. 0 401 876 723
1 - 6 - 3 - 5 - 2 - 4
0 - 75-120-195-240-315° +0,5° (+ 0,75°)
See Service Information VDT-I-401/102

superseded 5.81
Daimler-Benz
company OM 421
engine 159 kW (216 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BD Zyl. 6; RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery * cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,1+0,1	12,3-12,5	0,4(0,8)	12,1+0,1	13,5-13,7	
350	7,7-7,9	1,1-1,7	0,4(0,7)	7,7-7,9	1,4-2,0	
	* with return throttle (1)			* without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100%	800	0,3-1,0	-	-	-	ca. 28	350	7,8	-	-
	x = 3,25									
ca. 53	11,1	1165-1175					430-490	2,0		
②a	4,0	1240-1260								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(1) 1130	123,0-125,0 (120,0-128,0)	1165-1175*		-	-	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.83

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Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 28	350	7,8	-	-
	$x = 3,25$									
ca. 53	11,1	1165-1175					430-490	2,0		
	4,0	1240-1260								
②a	1400	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2) 1130	135,0-137,0 (132,5-139,5)	1165-1175*	-	-	100	140,0-160,0 (136,0-164,0)	0 - (0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...)		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 m

3. Edition

En

PE 6 P 110 A 320 LS 3814
Komb.-Nr. 0 401 846 741

RQV 350-1150 PA 378

supersedes 4.83

company: Daimler-Benz

engine: OM 421

1- 6- 3- 5- 2- 4

0-75-120-195-240-315° ± 0,5° (± 0,75°)

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery throttle (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery throttle (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	12,7+0,1	12,3-12,5	0,4(0,8)	12,7+0,1	13,5-13,7	
350	8,2-8,4	1,3-1,9	0,4(0,7)	8,2-8,4	1,3-1,9	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	300	0,6-0,9
ca. 66	11,7	1170-1180				375-485	350	8,2 - 8,4	580	3,6-3,7
	4,0	1280-1310							870	5,2-5,3
	1400	0-1,0							1150	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1130	123,0-125,0 (120,0-128,0)	1170-1180*	-	-	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Testoil-ISO 4113

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F12

FAL

B. Governor Settings

MB 11,0 m -2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	300	0,6-0,9
ca. 66	11,7 4,0 1400	1170-1180 1280-1310 0-1,0				375-485	350	8,2-8,4	580 870 1150	3,6-3,7 5,2-5,3 7,6
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1130	135,0-137,0 (132,5-139,5)	1170-1180*	-	-	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

En

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 11,01

2. Edition

Testoil-ISO 4113

PE 6 P 120 A 320 LS 3815 RQ 300/1150 PA 511-1

1 - 6 - 3 - 5 - 2 - 4

0 - 75 - 120 - 195 - 240 - 315° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 5.81

company Daimler-Benz

engine OM 421 A

184 kW (250 PS)

Komb.-Nr. 0 401 846 742

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{4,0}{(3,95-4,15)}$ mm (from BDC) $\overset{4,1}{Zy1. 6}$

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,0+0,1	16,9 - 17,1	0,5(0,9)			
300	5,0-5,2	1,4 - 2,2	0,8(1,2)			
600	-	C, Sp. 4 u. 5				
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8 VH=max. 46	600	20,0	10,0 4,0 1350	1195-1210 1250-1280 0 - 1,0	300	4,5	100 300 340-380	min. 6,0 4,4-4,6 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation A1 $1195 - 1210 \text{ min}^{-1}$ 1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7
LDA	0,7 bar 169,0 - 171,0 (166,0 - 174,0)	-	LDA 600	0,7 bar 153,0 - 159,0 (150,0 - 162,0)	100	130,0 - 150,0 (126,0 - 154,0)
			LDA 500	0 bar 146,0 - 148,0 (143,0 - 151,0)		

Checking values in brackets

9.83

BOSCH

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F14

614

B Governor Settings

MB 11,0 1

- 2 - ②

Checking of slider PRG check ①		Full load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full load delivery on governor control lever Test oil temp. 40 C (104 F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm
1	2	3	4	5	6	7

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure bar	Control rod travel diminution difference mm (1)
.. LS 3815 with .. PA 511-1	0,7 bar	0,41 0,39 0	11,0 - 11,1 10,8 - 10,9 10,6 - 10,7 10,4 - 10,5

Notes

(1) when n

En

rev/min and
gauge pressure

bar (maximum full load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 21,9 a 2

1. Edition

En

PE 12 P 120 A 320 LS 3819 RQ 1050 PA 634-1

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes

company: Daimler-Benz

engine: OM 424 A

385 kW

Komb.-Nr. 0 401 840 715

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) Zyl. 12
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,9+0,1	18,1-18,3	0,5(0,9)			
300	4,8-5,0	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
-	-	-	-	10,9 4,0	1050-1055 1090-1110	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At 1050-1055 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7
1000	181,0-183,0 (178,0-186,0)	-	-	-	100	170,0-190,0 (166,0-194,0)

Checking values in brackets

9.83

Testoil-ISO 4113

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP001/4 IHC 6,6 b

2. Edition

En

Testoil HSO 4113

VE 6/12 F 1250 R 23; P

0 460 425 002; 003 P

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar) engine: DT 402

supersedes 4.82

company: IHC

DT 402

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Pre-stroke setting - mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	4,0-4,4 mm	0,8	
1.2 Supply pump pressure	1000	5,5-6,1 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	500	77,0-81,0 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	116,0-117,0 cm ³ /1000 strokes	0,8	4,0 (4,5)
1.4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes	0	3,5 (4,5)
1.5 Start	100	min. 100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1310	67,0-73,0 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	600	1000	1200
LDA = 0,8 bar	mm	0,9-1,7 (0,6-2,0)	(3,5-4,9)	4,7-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min	400		1200
LDA = 0,8 bar	bar (kgf/cm ²)	3,5-4,1		6,0-6,6
Overflow delivery	n = rev/min	500		1250
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1390	max. 1,0	0,8
	1340	min. 1,0	
	1310	(66,0-74,0)	0,8
	1250	106,0-110,0 (105,7-110,3)	0,8
	1000	(114,2-118,8)	0,8
	* 500	97,0-101,0 (96,0-102,0)	0,27
	500	(76,0-82,0)	0
switch-off	1250	0	
Idle stop	420	min. 1,0	
	470	max. 1,0	
	350	(16,0-24,0)	
End stop	300	min. 105	
	400	max. 105	
2.4 Solenoid	max. cut-in voltage		
	test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,2-3,4
KF	5,4-5,6
MS	1,0-1,2
SVS	4,2-6,0
XK	20,2-22,2
XL	14,8-18,1

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 6/12 F 1250 R 23-1; P
0 460 426 005; 006 P

supersedes 3.83
Nozzle-and-holder assembly company: IHC
1 688 901 020 (172 + 3 bar) engine: DT 402/530 A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment
of 1 mm in
see VDT-W-460/..

Pre-stroke setting mm Setting of the pointer at a stroke relation to outlet "A".

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,8-4,2 mm	0,73	
1.2 Supply pump pressure	1000	5,6-6,1 bar (kgf/cm ²)	0,73	
1.3 Full-load delivery without charge-air pressure	600	77,0-81,0 cm ³ /1000 strokes	0	3,5 (4,0)
Full-load delivery with charge-air pressure	1000	116,0-117,0 cm ³ /1000 strokes	0,73	
1.4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes	0	3,5 (4,5)
1.5 Start	100	min. 100,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1380	22,0-28,0 cm ³ /1000 strokes	0,73	
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0.73 bar	n = rev/min mm	600 1,1-1,9(0,8-2,2)	1000 (3,4-4,7)	1200 4,7-5,4(4,3-5,7)
2.2 Supply pump LDA=0.73 bar	n = rev/min bar (kgf/cm ²)	400 3,5-4,1		1200 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	400 55-138(40-153)		1250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1450	max. 1,0	0,73
	1400	min. 1,0	0,73
	1380	(21,0-29,0)	0,73
	1250	106-110 (105,7-110,3)	0,73
	1000	(114,2-118,8)	0,73
	* 600	97-101 (96,0-102,0)	0,26
	600	(76,0-82,0)	0
switch-off	1250	0	
Idle stop	385-450	0	
	350	(16,0-24,0)	
End stop	350	min. 90	
	500	max. 90	
2.4 Solenoid	max. cut-in voltage		
	test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,4-5,6
MS	1,0-1,2
SVS	4,2-6,0
A	
B	

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/12 F 1250 R 38 (P)

0 460 426 007

008

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

supersedes 6.82

company: IHC

engine: DT 402/3994

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A". Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting

mm

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,5-4,1 mm		
1.2 Supply pump pressure	1000	5,3-5,9 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	900	112,0-113,0 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	500	15,0-21,0 cm ³ /1000 strokes		3,5 (4,5)
1.5 Start	100	min. 95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	56,0-64,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,3-2,1 (1,0-2,4)	1000 (3,1-4,5)	1200 4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 3,6-4,2		1250 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1420 1370 1300 1230 900 700 500	max. 1,0 min. 1,0 (55,0-65,0) 105,5-108,5 (104-110) (109,5-115,5) 99,0-103,0 (97,3-104,7) 82,0-86,0 (80,3-87,7)	
switch-off	1250	0	
Idle stop	570 520 500	max. 1,0 min. 1,0 (13,0-23,0)	
End stop	280 380	min. 105 max. 105	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,4-5,6
MS	0,8-1,0
SVS	4,6-6,0
XK	20,2-22,2
XL	9,6-12,9
Observations	

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 6/12 F 1250 R 38-1 (P)

supersedes 6.82

0 460 426 018

019

Nozzle-and-holder assembly

company:

IHC

1 688 901 020 (172 + 3 bar) engine:

DT 358/520 B

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".
Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-480/.

Pre-stroke setting - mm

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,8-4,2 mm		
1.2 Supply pump pressure	1000	5,4-6,0 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1000	94,5-95,5 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	15,0-21,0 cm ³ /1000 strokes		3,5 (4,5)
1.5 Start	100	min. 100,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	47,0-53,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,2-2,0 (0,9-2,3)	1000 (3,7-4,7)	1250 4,5-5,2
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 3,2-3,8		1250 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1430 1340 1300 1220 1000 700 500	max. 1,0 min. 2,0 (45,0-55,0) 87,5-90,5 (86,0-92,0) (92,0-98,0) 87,0-91,0 (86,0-92,0) 76,0-80,0 (74,2-81,8)	
switch-off	1250	0	
Idle stop	480 390 350	max. 1,0 min. 2,0 (13,0-23,0)	
End stop	300 420	min. 85 max. 85	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,4-5,6
MS	0,8-1,0
SVS	max. 6,0
A	
B	
Observations	

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-HSO 4113

VE 6/12 F 1250 R 38-2 (P)
0 460 426 023; 024

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

superseded 6.82

company: IHC

engine: DT 402/3994

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Test Instructions and Test Equipment
see VDT-W-460/..

Pre-stroke setting

-

mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,5-4,1 mm		
1.2 Supply pump pressure	1000	5,4-6,0 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1000	117,5-118,5 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	500	15,0-21,0 cm ³ /1000 strokes		3,5 (4,5)
1.5 Start	100	min. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	71,0-79,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,3-2,1 (1,0-2,4)	1000 (3,1-4,5)	1230 4,5-5,3 (4,2-5,6)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 3,7-4,3		1230 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1430 1380 1300 1230 1000 700 500	max. 1,0 min. 2,0 (70,0-80,0) 111,0-114,0 (109,5-115,5) (115,0-121,0) 102,5-106,5 (101,5-107,5) 92,0-96,0 (90,2-97,8)	
switch-off	1250	0	
Idle stop	570 520 500	max. 1,0 min. 2,0 (13,0-23,0)	
End stop	300 400	min. 115 max. 115	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,4-5,6
MS	0,6-0,8
SVS	max. 6,0
XK	20,2-22,1
XL	11,1-14,4

Observations

Test Specifications Distributor-type Fuel-injection Pumps

Testoil-ISO 4113

VE 6/11 F 750 R 55-2

0 460 416 017

supersedes

company: MAN

engine: D 0226 ME

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-strokes setting

0,6

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	4,0-4,4 mm		
1.2 Supply pump pressure	600	4.3-4,9 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	700	54,5-55,5 cm ³ /1000 strokes		3,5 (4,0)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	7,0-13,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Start	100	min. 50 cm ³ /1000 strokes		
1.6 Full-load speed regulation	750	44,0-50,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	400 1,0-1,8(0,7-2,1)	750 (3,5-4,9)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	300 2,7-3,3	750 5,0-5,6
Overflow delivery	n = rev/min cm ³ /10 s		750 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	820 750 700 600	max. 2,0 (42,5-51,5) (52,4-57,6) 49,0-53,0(47,6-54,4)	
switch-off	750	0	
Idle stop	460 300	max. 2,0 (5,5-14,5)	
End stop	400 500	min. 60 max. 60	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-5,9
MS	1,2-1,4
SVS	4,6-4,8
XK	25,0-27,0
XL	11,2-14,2

Observations

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 MAN 5,6 f

2. Edition

En

Testoil-ISO 4113

VE 6/11 F 1100 R 55-5

0 460 416 024

 superseded 11.82
 company: MAN
 engine: DO 226 ME

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04) mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	700	2,9-3,3 mm		
1.2 Supply pump pressure	700	3,9-4,5 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	700	69,0-70,0 cm ³ /1000 strokes		3,5 (4,0)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	2,5-6,5 cm ³ /1000 strokes		3,0 (4,0)
1.5 Start	100	min. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1250	19,0-25,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 0,9-1,7(0,6-2,0)	700 (2,4-3,8)	900 4,0-4,8(3,7-5,1)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,9-3,5		1100 5,7-6,3
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1100 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	1330 1250 1100 900 700 500	max. 1,5 (17,5-26,5) 75,5-78,5 (74,3-79,7) 73,5-76,5 (72,3-77,7) (66,8-72,2) 64,0-68,0 (62,6-69,4)		K KF MS SVS	- 5,7-5,9 1,2-1,4 max. 6,0
switch-off	1100	0		XK XL	25,0-27,0 11,8-15,2
Idle stop	340 300	max. 1,5 (0-9,0)		Observations Zugmagnet	
End stop	380 450	min. 81 max. 65			
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.				

3. Dimensions

for assembly
and adjustment
mm

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 3,7e

2. Edition

En

Testoil-ISO 4113

VE 4/10 F 750 R 57-2

O 460 404 015

supersedes 6.82

company: MAN

engine: D 0224 ME

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-46G/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	750	3,5-3,9 mm		
1.2 Supply pump pressure	750	4,5-5,1 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	700	54,5-55,5 cm ³ /1000 strokes		3,0 (3,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	10,0-14,0 cm ³ /1000 strokes		2,5 (3,5)
1.5 Start	100	min. 70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	750	43,0-49,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,4-2,2 (1,1-2,5)	750 (3,0-4,4)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 3,3-3,9	700 4,2-4,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	750 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	820 750 700 500	max. 2,0 (41,5-50,5) (52,4-57,6) 50,5-54,5 (49,1-55,9)	
switch-off	750	0	
Idle stop	450 350	max. 2,0 (7,5-16,5)	
End stop	360 460	min. 65 max. 65	
2.4 Solenoid	max. cut-in voltage XXXXXXX	rated voltage 24V	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,7-5,9
MS	1,1-1,3
SVS	3,9-4,1
XK	25,0-27,0
XL	13,2-16,5

Observations

Pushing electro-
magnet 24 V
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10.83

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 c

4. Edition

En

VE 4/9 F 2400 R 66-13
0 460 494 084

Overflow temperature 45° C

supersedes 11.82
company: VWV
engine: Passat Autom.

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply-pump pressure	1500	4,9-5,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1500	33,0-34,0 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	---	---	cm ³ /1000 strokes	
1.4 Idle regulation	450	6,0-10,0 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	100	min. 38,0 cm ³ /1000 strokes		
1.6 Start	2600	11,0-17,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	---	---		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2700 2600 2400 1500 600	2,5- 9,5 (2,0-10,0) (10,0-18,0) 27,5-29,5 (26,2-30,8) (31,2-35,8) 21,5-24,5 (20,0-26,0)	
switch-off mech. electr.	2400 400	0 0	
Idle stop	1200 650 450	max. 7,0 max. 5,0 (4,0-12,0)	
End stop	400 500	min. 18,0 max. 23,5	
2.4 Solenoid	cut-in voltage	min. 10 V	
		rated voltage 12V	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
* FH	1,8-2,4
⊗K	18,4-20,4
⊗L	10,4-12,8

Observations

* operating stroke
(cold-start accel.)

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12.83

G1

G1

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VMA 2,4 a

1. Edition

En

VE5/11 F 2100 L 101-1

0 460 415 004

supersedes

company: Motori VM

engine: HR 592 HT

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460A.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1800	5,8-6,2 mm	0,8	
1.2 Supply pump pressure	1800	6,3-6,9 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	600	40,5-42,5 cm ³ /1000 strokes	0	3,5
Full-load delivery with charge-air pressure	1500	50,0-51,0 cm ³ /1000 strokes	0,8	
1.4 Idle speed regulation	400	9,0-13,0 cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 55,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2400	11,5-17,5 cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	1000 1,5-2,3 (1,2-2,6)	1800 (5,3-6,7)	2100 7,2-8,0 (6,9-8,3)
2.2 Supply pump LDA=0,8bar	n = rev/min bar (kgf/cm ²)	600 2,3-2,9	2100 7,3 - 7,9	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)	2100 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	3,0-9,9 (1,5-10,5)	0,8
	2400	(10,0-19,0)	0,8
	2100	42,5-45,5 (41,3-46,7)	0,8
	1500	(47,8-53,2)	0,8
	*700	46,5-48,5 (44,1-50,9)	0,3
	600	40,5-42,5 (38,1-44,9)	0
switch-off	2100	0	
Idle stop	800	max. 3,0	
	400	(6,5-15,5)	
End stop	350	min. 50,0	
	450	max. 55,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	
KF	5,9-6,1
MS	0,9-1,1
SVS	3,0
** FH	1,8-2,4
^A XK	20,2-22,2
^B XL	9,2-12,5

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

*operating
stroke (KSB)

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 2,4 e

2. Edition

En

VE 6/10 F 2150 L 104

0 460 406 013

supersedes 1.83

company: VWV

engine: 087-LT

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

Testoil-ISO 4113

1. Settings

	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,8-3,2 mm		
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	28,0-29,0 cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes		2,0(3,0)
1.5 Start	100	min. 35,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2400	9,0-15,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,7-1,5(0,4-1,8)	1500 (2,3-3,7)	2150 4,9-5,7(4,6-6,0)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,0-3,6		2150 7,3-7,9
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2150 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600 2400 2150 1500 750	max. 3,0 (8,0-16,0) 23,0-25,0 (21,7-26,3) (26,2-30,8) 25,0-28,0 (23,5-29,5)	
switch-off eléctr.	400	0	
Idle stop	375 500	max. 2,0 (4,0-12,0)	
End stop	400 500	min. 25 max. 27	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	6,4-6,7
MS	1,4-1,6
SVS	max. 4,2
A XK	20,2-22,2
B XL	8,0-11,4

Observations

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⑥

Test Specifications Distributor-type Fuel-injection Pumps

En

46

WPP 001/4 PER 5,8 e

1. Edition

VE 6/12 F 1300 L 107
0 460 426 027

Overflow temperature 45° C

supersedes
company: Perkins
engine: T 6.354.4

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,35 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	-	- mm	-	
1.2 Supply-pump pressure	1000	4,2- 4,8 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery with charge-air pressure	500	67,0-71,0 cm ³ /1000 strokes	0	
Full-load delivery without charge-air pressure	1000	95,5-96,5 cm ³ /1000 strokes	0,75	3,5
1.4 Idle regulation	200	8,0-12,0 cm ³ /1000 strokes	0	3,5
1.5 Full-speed regulation	100	min. 90,0 cm ³ /1000 strokes	0	
1.6 Start	1450	32,0-38,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	stuck
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0 - 2,6
LDA=0,75 bar		1300 5,8 - 6,4
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)
		1300 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1600	0	0,75
	1550	1,0- 9,0 (0 -10,0)	0,75
	1450	(30,0-40,0)	0,75
	1250	90,0-93,0 (88,5-94,5)	0,75
	1000	(93,0-99,0)	0,75
	* 600	85,0-87,0 (83,0-89,0)	0,32
	500	(65,3-72,7)	0
switch-off	1300	0	
Idle stop	200	(5,0-15,0)	
	300	max. 7,0	
	450	0	
End stop	150	min. 90,0	
	250	max. 65,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,2-5,3
MS	1,2-1,3
SVS	max. 1,2
KK	20,2-22,2
KL	8,4-11,7

Observations

* * LDA-stroke 4,5 mm
Use adjusting nut
(46) to correct.

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12.82

G4

G4

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 2,4 a

2. Edition

En

VE 6/10 F 2400 L 116

0 460 406 018

superseded 2.82

company/VW

engine: 087- T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

Testo-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4 - 1,8 mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	26,5 - 27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0 - 45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1.4 Idle speed regulation	375	6,0 - 10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 - 16,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	1200	1500	2400
LDA=0,75bar	mm	0,2-1,0(0-1,3)	(0,9-2,3)	4,1-4,9(3,8-5,2)
2.2 Supply pump	n = rev/min	600	2400	
LDA=0,75bar	bar (kgf/cm ²)	3,3-3,9	8,1-8,7	
Overflow delivery	n = rev/min	600	2400	
	cm ³ /10 s	55-138(40-153)	55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750	max. 4,0	0,75
	2600	(9,0-17,0)	0,75
	2400	35,5-37,5 (34,2-38,8)	0,75
	1500	(42,2-46,8)	0,75
	* 800	33,5-34,5 (31,0-37,0)	0,30
	600	(24,0-30,0)	0
switch-off			
eléctr.	400	0	
Idle stop	375	(4,0-12,0)	
	600	max. 3,0	
End stop	400	min. 20,0	
	500	max. 30,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
★K	21,8-23,8
★L	9,4-12,7

Observations

Manifold-pressure
compensator stroke
= 4.2 mm
Correction at the
adjusting nut. (46)

2.4 Solenoid	max. cut-in voltage xxx min. 10 V
	test voltage xxx rated voltage 12V.

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 d

2. Edition

En

VE 6/10 F 2400 L 116-1

0 460 406 019

superseded by 12.82

company/VWV

engine: 087- T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4-1,8 mm	0,75	
1.2 Supply pump pressure	1500	5,7-6,3 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	26,5-27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1.4 Idle speed regulation	375	6,0-10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0-16,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	1200	1500	2400
LDA=0,75 bar	mm	0,2-1,0 (0-1,3)	(0,9-2,3)	4,1-4,9 (3,8-5,2)
2.2 Supply pump	n = rev/min	600		2400
LDA=0,75 bar	bar (kgf/cm ²)	3,3-3,9		8,1-8,7
Overflow delivery	n = rev/min	600		2400
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750	max. 4,0	0,75
	2600	(9,0-17,0)	0,75
	2400	35,5-37,5 (34,2-38,8)	0,75
	1500	(42,2-46,8)	0,75
	* 800	33,5-34,5 (31,0-37,0)	0,30
	600	(24,0-30,0)	0
switch-off mech.	2400	0	
elektr.	400	0	
Idle stop	375	(4,0-12,0)	
	600	max. 3,0	
End stop	400	min. 20	
	500	max. 30	
2.4 Solenoid	max. cut-in voltage	xxx min 10 V	
	rated voltage	12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
KK	21,8-23,8
XL	9,4-12,7

Observations

Manifold-pressure
compensator stroke
= 4.2 mm
Correction at the
adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 b

2. Edition

En

VE 6/10 F 2400 L 116-2

0 460 406 020

superseded 12.82

company: VWV

engine: 087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-430/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5 - 1,9 mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	25,5 - 26,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0 - 45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1.4 Idle speed regulation	375	6,0 - 10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 - 16,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min	1200	1500	2400
LDA = 0,75bar	mm	0,2-1,0(0-1,3)	(1,0-2,4)	5,4-6,2(5,1-6,5)
2.2 Supply pump	n = rev/min	600	2400	
LDA = 0,75bar	bar (kgf/cm ²)	3,3-3,9	8,1-8,7	
Overflow delivery	n = rev/min	600	2400	
	cm ³ /10 s	55-138(40-153)	55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750	max. 4,0	0,75
	2600	(9,0-17,0)	0,75
	2400	35,0-37,0 (33,7-38,3)	0,75
	1500	(42,2-46,8)	0,75
	* 800	32,5-33,5 (30,0-36,0)	0,30
	600	(23,0-29,0)	0
switch-off electr.	400	0	
Idle stop	375	(4,0-12,0)	
	600	max. 3,0	
End stop	400	min. 20,0	
	500	max. 30,0	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
AK	21,8-23,8
AL	9,4-12,7

Observations

Manifold-pressure
compensator stroke
= 4.2 mm
Correction at the
adjusting nut. (46)

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
rated voltage 12V.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 2,4 c

2. Edition

En

VE 6/10 F 2400 L 116-3

0 460 406 021

supersedes 12.82

company: VWV

engine: 087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5 - 1,9 mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3 bar (kgf/cm ²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	25,5 - 26,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0 - 45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1.4 Idle speed regulation	375	6,0 - 10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1.5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 - 16,0 cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	1200	1500	2400
LDA=0,75bar	mm	0,2-1,0(0-1,3)	(1,0-2,4)	5,4-6,2(5,1-6,5)
2.2 Supply pump	n = rev/min	600		2400
LDA=0,75bar	bar (kgf/cm ²)	3,3-3,9		8,1-8,7
Overflow delivery	n = rev/min	600		2400
	cm ³ /10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2750	max. 4,0	0,75
	2600	(9,0-17,0)	0,75
	2400	35,0-37,0 (33,7-38,3)	0,75
	1500	(42,2-46,8)	0,75
	* 800	32,5-33,5 (30,0-36,0)	0,30
	600	(23,0-29,0)	0
switch-off mech.	2400	0	
elektr.	400	0	
Idle stop	375	(4,0-12)	
	600	max. 3,0	
End stop	400	min. 20,0	
	500	max. 30,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
XK	21,8-23,8
X _h	9,4-12,7

Observations

Manifold-pressure
compensator stroke
= 4.2 mm
Correction at the
adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/12 F 1400 R 120

0 460 426 028

supersedes -

company: MAN

engine: DO 226 MK/170

125 KW/2800 1/min

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/.

Test oil ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	630	3,2-3,6 mm	0,8	
1.2 Supply pump pressure	630	5,6-6,2 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery without charge-air pressure	630	83,5-84,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	105,5-106,5 cm ³ /1000 strokes	0,8	4,0
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 80 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1440	86,0-94,0 cm ³ /1000 strokes	0,8	
1.7 Load-dependant start of delivery	630	-		

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	400 2,0-2,8(1,7-3,1)	630 (2,7-4,1)	800 4,0-4,8(3,7-5,1)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	200 3,9-4,5	1400 7,5-8,1	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-123)	1400 55-138(40-123)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1620 1550 1440 1400 1000 630 * 630 630	max. 1,0 26,0-34,0 (25,0-35,0) (85,0-95,0) 100,5-103,5(99,0-105,0) (103,0-109,0) 105,5-109,5(103,8-111,2) 101,5-102,5(98,3-105,7) (80,3-87,7)	0,8 0,8 0,8 0,8 0,8 0,3 0
switch-off	1400	0	
Idle stop	300 350 400	(8,0-18,0) max. 5,0 max. 1,0	
End stop	400 500	min. 87 max. 87	

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7-5,9
MS	1,0-1,2
SVS	4,9
A	
B	

Observations

2.4 Solenoid	max. cut-in voltage test voltage
--------------	-------------------------------------

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 Peu 2,3k

1. Edition

En

VE 4/9 F 2075 R 126

0 460 494 121

supersedes

company: Peu

engine: XD 3

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,8-6,2 mm	0,8 bar	
1.2 Supply pump pressure	1500	5,6-6,2 bar (kgf/cm ²)	0,8 bar	
1.3 Full-load delivery without charge-air pressure	500	38,5-39,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	55,0-56,0 cm ³ /1000 strokes	0,8 bar	2,5
1.4 Idle speed regulation	300	22,0-26,0 cm ³ /1000 strokes	0	2,0
1.5 Start	100	min. 67 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2300	24,5-30,5 cm ³ /1000 strokes	0,8 bar	
1.7 Load-dependent start of delivery	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	750 0,9-1,7(0,6-2,0)	1000 2,6-3,4(2,3-3,7)	1500 (5,3-6,7)	2000 7,8-8,6(7,5-8,9)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	200 1,0-1,6	750 3,4-4,0	2000 6,9-7,5	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2075 55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600	max. 2,0	0,8 bar
	2300	(23,5-31,5)	0,8 bar
	2200	37,0-43,0 (36,0-44,0)	0,8
	2000	52,9-54,9 (51,7-56,1)	0,8
	1500	(53,3-57,7)	0,8
	1000	48,8-51,8 (48,1-52,5)	0,8
	750 *	45,1-46,1 (43,4-47,8)	0,3 bar
	500	(36,0-42,0)	0
electr. switch-off	400	0	
Idle stop	300	(20,0-28,0)	
	380	4,0-8,0 (2,0-10,0)	
	500	max. 2,0	
End stop	210	min. 60	
	310	max. 60	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V xxxxxxxxxx rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	K1
KF	5,4-5,7
MS	1,2-1,4
SVS	4,6
A XK	20,2-22,2
B XL	9,3-12,6

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP-001/4 OPE 2,3 •

1. Edition

En

VE 4/9 F 2200 L 128

0 460 494 127

supersedes-

company: Opel

engine: 2,3 l

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	5,3-5,7 mm		
1.2 Supply pump pressure	1400	4,8-5,4 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1200	42,5-43,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	270	6,0-10,0 cm ³ /1000 strokes		2,0
1.5 Start	100	min. 52,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2480	20,0-26,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1400			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 2,3-3,1 (2,0-3,4)	1400 (4,8-6,2)	2200 9,1-9,9 (8,8-10,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	800 3,3-3,9		2200 6,9-7,5
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2200 55-138 (40-153)

2.3 Fuel deliveries				3. Dimensions <small>for assembly and adjustment mm</small>	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	
End stop	2700	max. 6,0		K	3,2-3,4
	2480	(19,0-27,0)		KF	5,7-6,0
	2200	34,2-36,8 (33,2-37,8)		MS	1,8-2,0
	2000	35,1-37,7 (34,1-38,7)		SVS	
	1200	(40,7-45,3)		* PH	1,8-2,4
	600	33,7-36,7 (32,2-38,2)			
switch-off				A XK	21,8-23,8
				B XL	9,4-12,8
Idle stop	330-420 270	0 (4,0-12,0)		Observations *operating stroke (KSB)	
End stop	180 300	min. 50,0 max. 40,0			
2.4 Solenoid	max. cut-in voltage rated voltage	xxx min. 10,0 V 12V.			

10.83

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G11

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 REN 2,0h

1. Edition

En

VE 4/9 F 2100 R 130
0 460 494 128

supersedes
company REN
engine 18S-234

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting

- mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,0-4,4 mm	0,8 bar	
1.2 Supply pump pressure	1400	5,1-5,7 bar (kgf/cm ²)	0,8 bar	
1.3 Full-load delivery without charge-air pressure	600	31,3-32,3 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1400	47,1-48,1 cm ³ /1000 strokes	0,8 bar	2,5
1.4 Idle speed regulation	375	4,0-8,0 cm ³ /1000 strokes	0	2,5
1.5 Start	100	min. 50,0 cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2300	18,0-24,0 cm ³ /1000 strokes	0,8 bar	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min mm	1000 1,9-2,7 (1,6-3,0)	1400 (3,5-4,9)	1800 5,8-6,6 (5,5-6,9)	2000 6,1-6,9 (5,8-7,2)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm ²)	400 1,9-2,5		1800 6,3-6,9	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2100 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2600	max. 2,0	0,8 bar
	2400	max. 14,0	0,8 bar
	2300		0,8 bar
	2000	39,5-42,5 (17,0-25,0)	0,8 bar
	1400	(38,8-43,2)	0,8 bar
	1000	(45,4-49,8)	0,8 bar
	700 *	42,6-45,6 (41,9-46,3)	0,8 bar
	600	36,3-37,3 (34,6-39,0)	0,2 bar
switch-off electr.	400	(28,8-34,8)	0

Idle stop

350 9,0-13,0 (7,0-15,0)
375 (2,0-10,0)
480

End stop

max. 2,0
170 min. 40
300 max. 40

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
xxxxxxx rated voltage 12V.
test voltage

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-6,0
MS	1,4-1,6
SVS	5,5
XK	20,2-22,2
XL	7,7-11,0

Observations

Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut. (46)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 KIA 2,2a
1..Edition.

En

supersedes
company KIA
engine: S2

Testoil-ISO 4113

VE 4/9 F 2150 L 147
O 460 494 142

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting = mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,0-3,4 mm		
1.2 Supply pump pressure	1500	4,2-4,8 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	1500	41,5-42,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	=	cm ³ /1000 strokes		
1.4 Idle speed regulation	300	8,0-12,0 cm ³ /1000 strokes		2,0
1.5 Start	100	min. 50,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	2300	20,0-26,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	=			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 0,7-1,5 (0,4-1,8)	1500 (2,5-3,9)	2100 7,2-8,0 (6,9-8,3)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 1,7-1,7		2100 6,2-6,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-123)		2100 55-138 (40-123)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	3. Dimensions for assembly and adjustment mm
End stop		2600	max. 2,0		K KF MS SVS A B
		2450	3,0-9,0 (2,0-10,0)		
		2300	(19,0-27,0)		
		2100	35,5-37,5 (34,2-38,8)		
		1500	(39,7-44,3)		
		1200	40,0-43,0 (39,2-43,8)		
		500	32,5-35,5 (31,0-37,0)		
switch-off		2150	0		
Idle stop		300	(6,0-14,0)		Observations
		350	1,0-5,0		
		400	max. 2,0		
End stop		200	min. 45		
		300	max. 45		
2.4 Solenoid	max. cut-in voltage xxx min. 10 V 12V rated voltage 12V.				

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 3,1 a

3. Edition

En

PE 4 A 70 B 410 RS 301 EP/RSV 250-1000 A 8/312 D
PE 3 A 70 B 410 RS 321
PE 6 A 70 B 410 RS 329

superseded 3.64
company KHD
engine F.. L 612

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	6,5-7,0	0,4			
1000	6,0	1,2-1,9				
1000	18,0	10,9-11,9				
200	6,0	0,7-1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control-lever deflection in degrees	rev/min	Control rod travel mm	3 Torque control rev/min	Control rod travel mm
1	2	3	4 5 6	7	8	9	10	11
ca. 47	1000 10,0 1040 6,0 1080 2,0		without auxiliary spring	ca. 20	250 5,5		980 0	
2a	1020 7,0-9,0 1050 3,0-6,0 1100 1,0-2,0 1150 0 - 1,0		with auxiliary spring		100 19,0-21,0 250 5,2-5,8 350 2,5-4,0 450 0 - 2,0 500 0 - 1,0		800 0,5-0,7 600 1,0-1,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)	6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics	Starting fuel delivery Idle	5 Idle stop	4a Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4 5	6 7	8 9
980	37,5-38,5	1010-130*	600 42,5-44,5 800 40,0-42,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
10.83

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 3,1a
3. Edition

40

En

PES 3 A 80 D 320 RS 1338 RSV 300-1000 A 7 B 505-1R
Komb.-Nr. 0 400 473 086

supersedes 6.83
company: MWM
engine: D 226-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3
(2,25-2,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8-4,9	0,2(0,35)			
300	7,4-7,6	0,8-1,4	0,2(0,3)			
600	---	C, Sp. 4 u.5	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.25	300	7,0	-	-
	X = 6,0						100	min.19,5		
ca.62	8,7	1020-1030					300	7,4-7,6		
⑤	4,0	1050-1080					390-450	=2,0		
	1205	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
980	48,0-49,0 (46,5-50,5)	1020-1030*	600	40,5-43,5 (39,0-45,0)	100	92,0-108,0 (89,0-111,0) = 19,5 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2
10.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 LOM 3,7 a

1. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-1300 A5B 2183 R

Komb.-Nr. 0 400 474 160

supersedes

company

Lombardini

engine

5LD 930,4

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,7 - 2,8 \\ (2,65 - 2,85) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,5-9,6	6,0 - 6,1	0,25(0,4)			
350	6,4-6,6	0,7 - 1,3	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	350	6,0	-	-
	x = 3,0						100	min. 19,5		
ca. 51	8,5	1290-1300					350	6,4-6,6		
2a	4,0	1350-1380					425-485	= 2,0		
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
1250	60,0-61,0 (58,5-62,5)	1290-1300*	-	-	100	118,0-128,0 (115,0-131,0) = 19,5 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

BOSCH

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G16

546

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP OC1/4 LOM 3,7 b

1. Edition

En

PES 4 A 80 D 420 LS 1345

RSV 350-750 A 7 B 2183-1 R

Komb.-Nr. 0 400 474 161

supersedes

company Lombardini

engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pumps Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,65-2,85, mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,2-9,3	5,3-5,4	0,25(0,4)			
350	7,9-8,1	1,2-1,8	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	350	7,5	-	-
	x=	3,75					100	min. 19,5		
							350	7,9-8,1		
ca. 36	8,2	740-750					395-455	2,0		
2a	4,0	760-790								
	925	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
700	52,5-53,5 (51,0-55,0)	740-750*	-	-	100	100,0-110,0 (97,0-113,0) =19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.83

G17

G17

Test Specification Testoil-ISO 4113

Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

En 4. Edition

PES 6 A 80 C 410	RS2085X	EP/RSV	350-1300	A2B1005D	(1)
..D..	RS2085X	EP/RSV	350-1425	A2B1001D	(2)
	RS2085X	EP/RSV	350-1425	A2B1007D	(3)
	RS2085X	EP/RSV	350-1400	A2B1052D	(4)
	RS2085T	EP/RSV	350-1300	A2B1005D	(5)

supersede 12.75
company: Daimler-Benz
engine: OM 352 - Unimog
(1+5) 84 PS
(2) 90 PS
(3) 100 PS
(4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

350-1300 A2 B1005 D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x = 4,25						100	min. 17,5	500	9,6+0,1
							350	6,8-7,0	700	9,3+0,2
ca. 48	7,0	1340-1350					695-755	=2,0	950	8,3+0,3
⑤	4,0	1410-1440								
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 *	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 13,6 - 14,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

B. Governor Settings

350-1425 A2 B1001D (2)

① Upper rated speed			Intermediate rated speeds			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1500	11,5					200	19 - 21	900	0 - 0,2
	1560	6,8					350	7,2-7,8	400	1,3-1,5
	1530	7,5-10,5	with auxiliary spring				500	5,1-6,6		
	1600	4,0-6,0					700	0,1-4,0		
	1820	0,3-1,0					940	0 - 1		
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1400	41,0 - 43,0	1455-1465	1000 800 500	37,0 - 40,0 38,5 - 41,5 40,0 - 43,0	100	72,5 - 82,5		
(When checking extend by $\pm 0,5 \text{ cm}^3$)								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

350-1425 A2 B1007D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,2	1400	0
	1500	11,4					200	19 - 21		
	1560	6,6					350	6,9-7,5		
	1520	8,0-10,9					600	2,3-4,6		
	1650	2,1-4,4					850	0 -1,5		
	1800	0,3-1,5								
⑤			with auxiliary spring						450	0,9-1,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1400	45,0 - 47,0	1420-1430	1000 800 500	41,0 - 44,0 42,5 - 45,5 40,0 - 43,0	100	72,5 - 82,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1A

B. Governor Settings

350-1400 A2 B1052D (4)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 59	1400	16,0	without auxiliary spring			ca. 22	350	7,5	1400	0
	1480	10,8					200	19 - 21	800	0,1-0,3
	1530	7,0					350	7,2-7,8	400	0,8-1,0
	1500	7,2-10,6					600	3,4-5,4		
	1600	3,6-5,5					950	0 - 1		
⑤	1800	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min						
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
(4) 1400	50,5 - 52,5	1425-1465	1000 800 500	46,0 - 49,0 44,5 - 47,5 44,5 - 47,5	100	72,5 - 82,5		
(When checking extend by $\pm 0,5$ cm ³)			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

350-1300 A2 B1005D mit 2085 T (5)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280	0
	1360	10,8					200	19 - 21	800	0,8-1,0
	1400	6,7					350	7,7-8,3		
ca. 49	1300	ca. 8,2	with auxiliary spring				600	2,2-4,3		
	1400	ca. 3,7					780	0 - 1		
	1520	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min						
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
(5) 1290	40,0 - 41,0 (38,5 - 40,5)	1330-1340 (1325-1345)	800 500	37,5 - 40,5 (35,0 - 41,0) 36,5 - 39,0 (34,0 - 39,5)	100	72,5 - 82,5		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1
4. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL
Komb.-Nr. 0 400 846 185

supersedes 6.83
company: Daimler-Benz
engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	6,9-7,1	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 14	100 300	min. 7,5 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca. 60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 (68,5-84,5) = 12,9-13,3 mm RW	1450 500 800 1200	8,2-8,3 9,2-9,3 8,9-9,3 8,2-8,5

Checking values in brackets

* 1 mm less control rod travel than col. 2
10.83

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SAU 16,0 a

1. Edition

En

PES 6 A 85 D 410 RS 2091
Komb.-Nr. 0 400 846 526

RQV 250-1000 AB 491-1L

supersedes

company Saurer

engine: 12 BD 11

147 kW

Schienen-Traktor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(2,15-2,25)$ mm (from BDC)
 $(2,10-2,30)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,0+0,1	7,1-7,2	0,3(0,5)			
250	5,9-6,1	0,7-1,1	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1020	15,2-17,8	-	-	-	ca. 12	100 250	min. 7,5 5,9-6,1	300 600 900 1100	2,3-2,5 4,6-4,9 7,1-7,3 9,5-9,9
ca. 61	9,0 4,0 1250	1040-1050 1100-1130 0-1,0				250-350 ③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	71,0-72,0 (69,0-74,0)	1040-1050*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SAU 16,0 b

1. Edition

En

PES 6 A 85 D 320 RS 2092 RQV 250-1000 AB 492-1 R
Komb.-Nr. 0 400 846 527

supersedes -
company: Saurer
engine: 12 BD 11
147 kW
Schienen-Traktor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,0+0,1	7,1-7,2	0,3(0,5)			
250	5,9-6,1	0,7-1,1	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1020	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	300	2,3-2,5
ca. 61	9,0	1040-1050					250	5,9-6,1	600	4,6-4,9
	4,0	1100-1130							900	7,1-7,3
	1250	0-1,0				250-350			1100	9,7
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑧		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1000	71,0-72,0 (69,0-74,0)	1040-1050*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 12,8 g

1. Edition

En

PE 6 A 90 D 320 LS 2372 RQV 250-1250 AB 1186 R

Komb.-Nr. 0 400 648 136

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^0 \pm 0,5^0$ ($\pm 0,75^0$)

supersedes-

company: MAN

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,5+0,1	10,3-10,4	0,3(0,5)			
250	5,9-6,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 45	9,5	1290-1300					250	5,9-6,1	550	3,9-4,2
	4,0	1340-1370					320-380	=2,0	1000	5,9-6,3
	1500	0 - 1,0							1350	9,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	102,5-103,5 (100,5-105,5)	1290-1300*	800	96,5-98,5 (94,0-101,0) max. 94,0 (max. 96,5)	100	133,0-143,0 (130,0-146,0)	-	-
			500					

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 d

1. Edition

En

supersedes -

company -

engine -

K H D
F6 L912
75kW (102PS)
BF6 L913
107kW (145PS)

PES 6 A 80 D410/3 RS2527 EP/RSV 325-1150 A8 B2014DL
PES 6 A 85 D 410 RS2537 EP/RSV 325-1150 A3 B2020DL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 2527 cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery 2537 cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8 +0,1	5,5 - 5,7	0,2(0,35)	11,0 +0,1	7,9 - 8,1	0,3 (0,45)
325	8,8-9,0	0,9 - 1,5	0,2(0,3)	6,8-7,0	0,9 - 1,5	0,2 (0,4)
775	- - -	C, 4-5	0,3(0,4)	800/500	C, 4-5	0,4 (0,55)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

2014DL

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11 +0,1
loose	800	0,3-1,0				ca. 21	325	4,9-5,1	1150	11,9
							100	min. 19	950	12,1
							325	5,4-5,6	775	12,6
							390-450	= 2,0	450	12,7
							500	0 - 1		
ca. 55	10,8 4,0 1350	1190-1200 1235-1265 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *		775	56,0 - 58,0 (54,5 - 59,5)			325	5,5
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

1.78

Testoil-ISO 4113

2020DL

B. Governor Settings

(1A)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11 +0,1
loose	800	0,3-1,0				ca.21	325	4,9-5,1	1150	11,0
							100	min. 19	750	12,5
							325	5,4-5,6	450	12,6
ca.55	10,0	1190-1200					510-570	=2,0		
⑤	4,0	1225-1255					700	0 - 1		
	1350	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation Note: changed to ... rev/min	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
LDA	0,7 bar	1190-1200*	LDA	0,7 bar	100	17,4-19,0 (Magnet 12 V)	325	5,5
1150	79,5 - 81,5 (77,5 - 83,5)		800	88,0 - 91,0 (86,0 - 93,0)				
			⑥a LDA	0 bar 60,0 - 63,0 (58,0 - 65,0)				

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (g p.)

Pump/governor	Setting (g p.)	Measurement (g p.)	Control rod travel mm
2537 mit 2020DL	0,58	0,38 0,10 0	12,6 - 12,8 12,2 - 12,3 10,6 - 10,9 10,6 - 10,7

Notes:

(f) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p

8. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 850 DL
Komb.-Nr. 0 400 846 420

supersedes 8.82
company: MAN
engine: D 2566 M, MF
177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,9 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,5-1,2
ca. 42	11,0	1140-1150					250	5,9-6,1	600	3,8-4,1
	4,0	1180-1210					325-385=2,0mm		1140	8,3
	1300	0 - 1,0				③a	450	max. 1,0		

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	107,5-113,5 (105,0-116,0)		= 14,0-14,6 mm RW		
					250	6,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p14
2. Edition

En

PES 6 A 95 D 410 LS 2542
Komb.-Nr. 0 400 846 424

RQ 250/1100 AB 965 DL

supersedes 10.82
company: MAN
engine: D2566 M
177 kW (240PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5-12,7	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,1	100	min. 7,6	-	-
				4,0	1185-1215			250	6,0-6,2		
				1300	0- 1,0			360-420	= 2,0		
								500	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	124,5-126,5 (122,5-128,5)	-		500	max. 113,5 (max. 115,5)	100	125,0-135,0 (122,0-138,0) = 14,0 - 14,6 mm RW
						250	6,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 1

5. Edition

En

Testoil-ISO 4113

 PES 6 A 95 D 410 LS 2542 Z
 .. LS 2542

 POV 250-1100 AB 1038 DL (1)
 PO 250/1100 AB 1049 DL (2)
 RO 250/1050 AB 965 DL (3)

supersedes 1.80

company: MAN

engine: D2566 MR/MFR/MFO

(1 - 162 kW - 220PS-Saviem)

(2 - 162 kW - 220PS-MFO/MFO)

(3 - 177 kW - 241PS-MP/MFR)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke 1,50-1,60
 (1,45-1,65) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	11,3 - 11,5	0,3(0,6)	12,0-12,1	12,9 - 13,1	n 1050
250	5,9-6,1	0,8 - 1,5	0,3(0,5)	6,5-6,7	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

(1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	14,4-17,6	-	-	-	ca. 13	100 250 320-380 450	min. 7,5 5,9-6,1 = 2,0 0-1	200 700 1140	0,5-1,2 4,3-4,6 8,3
ca. 42	10,3 4,0 1300	1140-1150 1175-1205 0 - 1,0				3a				

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9 ± 0,1
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700	102,5-105,5 (100,5-107,5)	100	124,0-134,0	1100 700	11,3 11,7
			500	max. 106,5 (108,5)	250	6,0 mm RW	500	11,7
						100-170 (80-190)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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B. Governor Settings

(2)

MAN 11,1 p 1

- 2 -

(2)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications			
Control rod travel		rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel
mm			mm	mm			mm	mm			mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3
								250	5,9-6,1	845	11,2-11,5
				4,0	1185-1215			360-400	=2,0	750	11,4-11,6
										600	11,6-11,7

Torque-control travel on flyweight assembly dimension a =

0,3

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
Test oil temp 40°C (104°F)							
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel
1	2	3		4	5	6	mm
(2)							
1100	112,5 - 114,5 (110,5 - 116,5)			700	102,5 - 105,5 (100,5 - 107,5)	100	125,0-135,0 (122,0-138,0) = 15,0-16,0mmRW
				500	max. 106,5 (max. 108,5)	250	6,0 mm RW

Checking values in brackets

B. Governor Settings

(3)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications			
Control rod travel		rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel
mm			mm	mm			mm	mm			mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,0	1095-1110	250	6,6	100	min. 8,1	-	-
								250	6,5-6,7		
				4,0	1145-1170			375-415	=2,0		
1250	0 - 1							450	0 - 1		

Torque-control travel on flyweight assembly dimension a =

0

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
Test oil temp 40°C (104°F)							
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel
1	2	3		4	5	6	mm
(3)							
1050	127,5 - 129,5 (125,5 - 131,5)			500	max. 113,5 (115,5)	100	124,0 - 134,0 6,0 mm RW

En Checking values in brackets

Hc

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 9

4. Edition

En

PES 6 A 95 D 410 LS 2542
KOMU.-Nr. 0 400 846 471

RQV 250-1100 AB 1134 L

supersedes 1.81
company: MAN-Fendt
engine.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$ mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,5+0,1	12,6-12,8	0,35(0,6)			
250	7,5-7,7	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	mm rev/min	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	200	0,7-0,9
ca. 48	10,2	1140-1150					250	7,5-7,7	500	3,7-4,1
	4,0	1175-1205					440	max. 1,0	800	5,4-5,7
	1300	0-1,0							100	8,1

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	126,0-128,0 (124,0-130,0)	1140-1150*	1100	111,5-115,5 (109,5-117,5)	100	125,0-135,0 (122,0-138,0)	1100	11,2+0,1
			500	113,5-117,5 (111,5-119,5)		= 15,4-16,0 mm RW	500	12,5+0,1
							940	12,1+0,1
							1025	11,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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H7

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 20

1. Edition

En

PES 6 A 95 D 410 LS 2542
Komb.-Nr. 0 400 846 516

RQV 250-1100 AB 1177 DL

supersedes
MAN
company: D 2566 M/MF
engine: 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5-1,6}
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,35(0,6)			
250	5,9-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 47	11,0	1140-1150					250	5,9-6,1	500	3,4-3,8
	4,0	1180-1210					320-380=2,0		800	4,9-5,4
	1300	0-1,0							1100	7,6

Torque control travel = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	107,5-113,5 (105,0-116,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
10,83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n 1

1. Edition

En

PE 12 A 95 D 610 LS 2453 RQV 1150 AB 996 L
Komb.-Nr. 0 400 640 096

supersedes-

company: KHD

engine: F 12 L 413 F

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1110	9,3-9,4	8,6-8,8	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 27	8,6 4,0	1150-1155 1175-1190	-	-	-	-	-	-	1075 1150 1200	0,6 4,0 6,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1110	85,5-87,5 (83,5-89,5)	1150-1155*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.83

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H9

H9

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 HAN 10,8 e 1
3. Edition

En

PE 6 A 95 D 320 RS 2557 RSV 400-1100 A8B 1146 R
A8C 1146 R

supersedes 10.81
company: Hanomag
engine: D 963
118 kW (160 PS)
Komb.-Nr. 0 400 676 170

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
(2,1 - 2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,3+0,1	9,0 - 9,2	0,3(0,6)			
400	7,9-8,1	3,6 - 4,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	400	7,5	1100	10,3+0,1
	X =	5,0					100	min. 19,0	835	10,7+0,2
ca. 51	9,3	1140-1150	-	-	-	-	400	7,9-8,1	500	11,3+0,1
	4,0	1210-1240					590-650	= 2,0 mm		
⑤	1345	0,3 - 1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	90,0 - 92,0 (88,0 - 94,0)	1140-1150*		700	100,0-103,0 (98,0-105,0)	100	19,0-21,0 mm RW	-	-
				500	90,5-93,5 (88,5-95,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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H10

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 f

2. Edition
En

superseded 0.78

company: MAN

engine: D 2530 MXF - Nr.7894
(235 kW - 320 PS)

Testoil-ISO 4113

PE 10 A 90 D 520/5 LS2567

RQV 250-1250 AB993DR

...LS2567

250-1250 AB1062DR

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2

0 -45 -72 -117-144-189-216-261-288-333⁰ ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC) Zyl. 10; RW=9,0 - 12,0 mm
(1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,5+0,1	10,2 - 10,3	0,3(0,45)			
250	9,0-9,2	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQV..993DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1275	14,4-17,4	-	-	-	ca.13	100 min.7,5 250 5,9-6,1 325-385 =2,0 450 0 - 1		250 800 1290	1,0-1,2 5,0-5,4 8,3
ca. 45	11,5 4,0 1500	1290-1300 1360-1390 0 - 1,0				3a				

Torque control travel s = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	101,5-102,5 (99,5-104,5)	1290-1300*	800	95,5-98,5 (93,5-100,5) max. 89,0	100	134,25-144,25	1250	11,5
			500		250	7,0 mm RW	810	12,0
						100-170(80-190)	500	12,1
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

H11

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H44

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1275	14,4-17,4	-	-	-	ca. 13	100	min. 7,5	250	1,0-1,2
							250	5,9-6,1	800	5,0-5,4
							325-385	=2,0	1290	8,3
							450	max. 1,0		
ca. 45	11,5 4,0 1500	1290-1300 1365-1395 0 - 1,0				3a				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	101,5-102,5 (99,5-104,5)	1290-1300 *	800	95,5- 98,5 (93,5-100,5)	100	135,0-145,0 (132,0-148,0)	1250	12,5+0,1
					250	7,0 mm RW	1035	12,5+0,3
					290	5,7 mm RW**	810	12,9+0,2
							500	13,1+0,1
					100-170 (80-190)			

Checking values in brackets

* 1 mm less control rod travel than col 2

**

Set control-rod stop to contact

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

En

H12

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 K 1

3. Edition

En

PES 6 A 85 D 410/3 RS 2592

RQV 300-1250 AB 1158 L

Komb.-Nr. 0 400 836 027

supersedes 9.82

company: KHD

engine BF 6 L 913

GMC vehicle

118 kW (160 PS)

bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	13,2+0,1	8,8-8,9	0,3(0,45)			
300	8,7-8,9	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250	15,2-17,8	-	-	-	ca. 15	100	min. 10,3	250	0,5-0,8
							300	8,7-8,9	580	3,6-3,7
ca. 66	12,2	1290-1300				350-450			920	5,3-5,4
	4,0	1380-1410							1250	8,1
	1500	0-1,0								

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 87,5-88,5 (85,5-90,5)	1290-1300*	LDA 800	0,7 bar 89,5-92,5 (87,5-94,5)	100	118,5-128,5 bei 17,8 - 18,2 mm RW	1250	13,2+0,1
LDA 1100	0,7 bar 87,5-90,5 (85,5-92,5)		LDA 500	0 bar 59,0-60,0 (57,0-62,0)			800	14,0+0,1
							925	13,8+0,2
							1130	13,3+0,3

Checking values in brackets

* 1 mm less control rod travel than at 2

11.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 K 2

4. Edition

En

PES 6 A 85 D 410 RS 2592 RQV 300-1250 AB 1158 L

Komb.-Nr. 0 400 846 497

supersedes 9.83

company: KHD

engine: BF 6 L 913

GMC-Fahrzeug

118 kW (160 PS)

/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from SDC) 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,5+0,1	8,4-8,5	0,3 (0,45)			
300	8,3-8,5	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca.15	100 300	min.10,2 8,6-8,8	250 580 920 1250	0,5-0,8 3,6-3,7 5,3-5,4 8,1
ca. 66	11,5 4,0 1500	1290-1300 1375-1405 0 - 1,0				450-575				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)	Torque-control travel (5) Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1290-1300*	LDA	0,7 bar	100	102,0-112,0	1250	12,5+0,1
1250	83,5-84,5 (81,5-86,5)		800	80,5-82,5 (78,0-85,0)		(99,0-115,0) + 16,9-17,3 mm RW	500	13,2+0,1
			LDA	0 bar			910	13,0+0,2
			500	59,0-61,0 (56,5-63,5)			1130	12,6+0,2

Checking values in brackets

* 1 mm less control rod travel than col 2

11.83

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H44

H14

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2592 + RQV..AB 1158 L	0,70		13,2 - 13,3
		0	11,8 - 11,9
		0,48	12,8 - 12,9
		0,33	11,9 - 12,1

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

3. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L

Komb.-Nr. 0 400 836 028

supersedes 9.83
KHD
company BF 6 L 913
engine 118 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3

(2,15-2,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9-9,0	0,3(0,5)			
300	6,9-7,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 13	300	6,9-7,1	325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470			850	4,9-5,1
									1150	7,1-7,3
									1400	9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 500	0,7 bar 73,0-75,0 (70,5-77,5)	100	110,0-120,0 (107,0-123,0) =17,1-17,5 mm RW	1250	12,0+0,1	
LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)		LDA	0 bar 59,0-61,0 (57,0-63,0)			500	12,8+0,1	
							775	12,5+0,2	
							1025	12,1+0,3	

Checking values in brackets

* 1 mm less control rod travel than col 2

11.83

H16

H46

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D. Adjustment Test for Manifold Pressure Compensator

- 2 -

KHD 6,1 k 3

Test at n =

500

rev/min decreasing
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0	12,8-12,9
		0,26	10,9-11,1
		0,19	12,4-12,5
			11,9-12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCL 9,8 a 1

3. Edition

En

PE 8 A 95 D 410 RS 2615 RSV 325-1025 A1B 2177 L

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 400 678 042

supersedes 6.83

company: Schlüter
engine: SDMT 110/112W8
136 kW (185 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0}{1,95} - \frac{2,1}{2,25}$ mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1025	12,7+0,1	10,2 - 10,4	0,3 (0,6)			
325	8,4-8,6	1,4 - 2,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca.27	325	8,0	1025	12,7+0,1
	x =	5,0					100	min.19,5	500	13,1+0,1
							325	8,4-8,6	795	12,8+0,2
ca.57	11,7	1065-1075					590-650	= 2,0		
⑤	4,0	1165-1195								
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
LDA 1025	0,7 bar 102,5-104,5 (100,5-106,5)	1065-1075*		LDA 700	0,7 bar 103,5-106,5 (101,5-108,5)	100	171,5-181,5 (168,5-184,5) = 19,5 - 21,0 mm RW	-	-
				LDA 500	0 bar 73,5-76,5 (71,5-78,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

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H18

D. Adjustment Test for Manifold Pressure Compensator

SCL 9,8 a1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8A..RS2615 mit ..A1B2177L	0,32	0,70 0 0,18	12,9 - 13,0 13,1 - 13,2 11,9 - 12,0 12,3 - 12,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at 0,40 - 0,50 bar

Unlocking at 0,15 - 0,25 bar

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 2,9 c 4

2. Edition

En

PES 3 A 90 D 320 RS 2626

RSV 300-975 A 1 B 2171-5 R

supersedes 2.83
Eicher
company EDL 3-2
engine 40 kW

Komb.-Nr. 0 400 873 036

1 - 3 - 2 je 120°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,2-2,3}
(2,15-2,35) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
975	11,3+0,1	7,7-7,8	0,25(0,5)			
300	7,9-8,1	1,5-2,5	0,2 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 5,0	-	-	-	ca. 26	300	7,5	-	-
ca. 54	10,4	1015-1025					100	min.19,5		
2a	4,0	1070-1100					300	7,9-8,1		
	1235	0,3-1,7					41 -47	=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
975	77,0-78,0 (75,0-80,0)	1015-1025*		600	68,0-70,0 (65,5-72,5)	100	128,0-138,0 (125,0-141,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.83

H20

H20

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 4,2 &

2. Edition

En

PES 4 A 90 D 210 RS 2627 RSV 350-1300 AOB 2144 L
Komb.-Nr. 0 400 864 052 AOC 2144 L

superseded 6.82

company Ford

engine: Dover 254

At port closing the locating pin must engage
in the slot of the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,7-2,8}{(2,65-2,85)}$ mm (from BDC) bei RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	13,5+0,1	7,4 - 7,5	0,3(0,45)			
350	7,2-7,4	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.37	350	6,8	-	-
	X =	3,5					100	min.19,0		
							350	7,2-7,4		
							570-630	=2,0		
							750	max. 1,0		
⑤ ca.71	12,5	1365-1375								
	4,0	1540-1570								
	1705	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3		4	5	6	7	8	9
1	2								
1250	73,5-74,5 (71,5-76,5)	1365-1375*	-	-	-	100	76,0-90,0 (73,0-93,0) = 19,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

BOSCH

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H2A

H21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 f

En

3. Edition

PES 6 A 90 D 210 RS 2629 RSV 350-1300 AOB 2142 L
Komb.-Nr. 0 400 866 102 AOC 2142 L

supersedes 6.83

company: Ford

engine: Dover 363

Testoil-ISO 4113

At port closing the locating pin must engage
in the slot of the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,7-2,8}{(2,65-2,85)}$ mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	11,7+0,1	5,9 - 6,0	0,3(0,45)			
350	7,3-7,5	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 39	350	6,9	1250	11,7+0,1
	X = 3,5						100	min. 19,5	700	11,9+0,1
							350	7,3-7,5		
							580-640	= 2,0		
ca. 71	10,7	1370-1380								
⑤	4,0	1515-1545								
	1680	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
1250	58,5-59,5 (56,5-61,5)	1370-1380 *	-	-	100	76,0-90,0 (73,0-93,0) = 19,5 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 3,9 g 1

2. Edition

En

PES 6 A 80 D 320 RS 2652 RSV 300-1150 A 0 B.2001-2 R

Komb.-Nr. 0 400 876 317

supersedes 6,83
company Eicher
engine EDL 6-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
(2,1-2,3) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	7,8 - 7,9	0,25(0,4)			
300	8,3-8,5	2,0 - 3,0	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 25	300	7,9	-	-
	x = 4,75						100	min. 19,5		
							300	8,3 - 8,5		
ca. 49	11,0	1190-1200					450-510	0 = 2,0		
2a	4,0	1285-1315								
	1430	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
1150	77,5-78,5 (76,0-80,0)	1190-1200*	600	71,0-73,0 (69,0-75,0)	100	103,0-113,0 (100,0-116,0) = 16,2 - 16,8 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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H23

H23

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 f
2. Edition

En

PES 6 A 80 D 410 RS 2663
Komb.-Nr. 0 400 846 499

RQV 300-1350 AB 1175 L

supersedes 9.83
company: Fiat
engine: 8060.24.661
90,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,2 - 2,3}{(2,15 - 2,35)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	13,5+0,1	6,7-6,8	0,25(0,35)			
300	7,1-7,3	0,9-1,5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1440	15,2-17,8	-	-	-	ca. 13	100	min. 9,0	250	0,2-0,5
ca. 60	12,5	1390-1400					300	7,4-7,6	550	3,0-3,5
	4,0	1535-1565					920	max. 1,0	1000	5,2-5,4
	1700	0 - 1,0				350-450			1550	9,7
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1350	0,7 bar 66,5-67,5 (65,0-69,0)	1390-1400*	LDA 800	0,7 bar 59,0-61,0 (57,0-63,0)	100	110,0-130,0 (107,0-133,0) = 17,3-17,9 mm RW	-	-
			LDA 500	0 bar 39,5-41,5 (37,5-43,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 f

- 2 -

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2663 + RQV..AB1175L	0,70		13,5 - 13,6
		0,27	13,2 - 13,3
		0,23	12,4 - 12,6
		0	12,0 - 12,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DEE 7,6 e 1

1. Edition

En

PES 6 A 100 D 410 RS 3028
Komb.-Nr. 0 401 276 047

RSV 400-1100 A 2 B 2010 DL

supersedes -

company John Deere
engine 6466 A
Traktor 4640

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05
(1,90-2,10) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	11,1-11,3	0,3 (0,6)			
400	6,3-6,5	1,2-1,8	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 19	400	6,3	750	11,9
	x =						100	19,0-21,0	1100	11,1
							500	9,9		
ca. 43	1150	10,1					530-590	= 2,0		
2a	1200	4,8								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)								
rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	1,2 bar 111,0-113,0 (108,0-116,0)	1145-1155*	LDA 750	1,2 bar 119,5-122,5 (116,5-125,5)	100	175,0-195,0		
			LDA 500	0 bar 77,0-81,0 (74,0-84,0)	400	12,0-18,0		
					1200	27,0-33,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

12.83

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D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 e 1

- 2 -

Test at n = 800 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6A..RS3028 + RSV..A2B2010DL	0,39	0,17	11,65 - 11,75 10,3 - 10,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 e

1. Edition

En

PES 6 A 100 D 410 RS 3028 US-RSV 400-1100 A2B 2152 L
Komb.-nr. 9 400 230 040
Use overflow valve 1 413 385 007

supersedes—

company John Deere
engine 6466 A
138 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05 mm (from BDC)
(1,90-2,10)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,6+0,1	10,8-11,0	0,3(0,6)			
400	5,9-6,1	1,2-1,8	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
Loose	800	0,3-1,0	-	-	-	ca. 19	400	5,5	1100	10,6-10,7
ca. 44	9,6	1145-1155					100	min. 19,0	750	12,2-12,4
2a	4,0	1195-1225					400	5,9-6,1		
	1280	0,3-1,7					480-540	= 2,0		
							550	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		5 4a Idle stop rev/min Control rod travel mm 8 9	
LDA 1100	0,72 bar 108,0-110,0 (106,0-112,0)	1145-1155*		LDA 750	0,72 bar 123,0-129,0 (122,0-130,0)	100	170,0-190,0	400	6,0
				LDA 500	0 bar 93,0-97,0 (91,0-99,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

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Testoil-ISO 4113

J5

J5

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 e

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6A..RS3028 + US-RSV..A2B2152L	0,24	0,08	12,05 - 12,15 11,2 - 11,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 b

3. Edition

En

PES 6 A 100 D 410 RS 3034 RSV 600-1100 A 2 B 2080 L

Komb.-Nr. 0 401 276 049

Use overflow valve 1 413 385 007

supersedes 8.83

company John Deere

engine 6.466 AZ-01

152 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95-2,05 mm (from BDC)
(1,90-2,10)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,7±0,1	12,9-13,1	0,3			
600	4,5-4,7	1,3-1,7	0,3			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 19	600	4,1	-	-
ca. 37	10,7	1145-1155					100	min. 19,0		
2a	4,0	1195-1225					600	4,5-4,7		
	1250	0,3-1,7					635-695	= 2,0		
							800	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
LDA 1100	0,7 bar 129,0-131,0 (126,5-133,5)	1145-1155*	LDA 500	0 bar 68,5-71,5 (67,0-73,0)		100	170,0-195,0 = 19,0- 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.83

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 b

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 A ..RS 3034 +RSV..A 2 B 2080L	0,29	0,13	2,65-2,75 0,7-1,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8,1 c 1

3. Edition

PES 6 MW 100/720 RS 1012 RQV 425-1100 MW 35

0 403 446 126

1- 5- 3 - 6 - 2 - 4

0-60-120-180-240-300 \pm 0,50 (0,75)

supersedes 8.83

company: OM-Brescia

engine: 8365.25.522

122 kW (152 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,90-3,00}{(2,85-3,05)}$ mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,2 \pm 0,1	8,15-8,35	0,35(0,6)			
425	5,8-6,0	1,05-1,45	0,35(0,55)			
700	11,1 \pm 0,1		0,5 (0,7)			
500	10,6 \pm 0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100 1300	15,2-17,8 0-1,0	-	-	-	ca. 14	425 100	5,8-6,0 min.7,5	425 500 1150	1,8 2,3-2,9 9,0-9,2
ca.48	9,2 4,0	1140-1150 1185-1215				③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10
LDA	0,5 bar		LDA	0,5 bar	100	RW max. 19 min.160 (min.157)	700	11,1	
1100	81,5-83,5 (79,5-85,5)	1140-1150*	700	84,5-88,5 (82,5-90,5)	425	10,5-14,5 (9,0-17,0)	1000	10,2	
			LUA	0 bar					
			500	67,5-69,5 (65,5-71,5)	100-345	(80-365)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1012 mit RQV...MW 35	0,25		10,9 - 11,0
		0,5	11,1 - 11,2
		0	10,6 - 10,7

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/8 VOL 4,5 b 2
1. Edition

En

PES 4 MW 100/320 RS 1102 RQV 300-1150 MW 39

0 403 444 102

supersedes

company: Volvo-BM

engine: D 45

60 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC) RW = 9 - 12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	8,2 - 8,4	0,35(0,6)			
300	6,5-6,6	1,3 - 1,7	0,35(0,55)			
1000	11,0+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150 1400	15,2-17,8 0 - 1,0				ca. 11	300 100	5,6-5,7 min.7,2		
ca. 50	10,0 4,0	1190-1200 1245-1275				320-520				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	82,0-84,0 (80,0-86,0)	1190-1200*	1000	84,0-88,0 (82,0-90,0)	100 300	max. 140 13,0-17,0 (10,5-19,5)		
					100-220(80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 STE 10,0 d 2

1. Edition

En

PE 6 P 110 A 321 RS 157-1 RQ 250/1100 PA 692

Komb.-Nr. 0 401 856 155

supersedes-

 company: Steyr
 engine: 9 FU-A
 184 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,2+0,1	13,4-13,6	0,4(0,75)			
250	5,9-6,1	1,7-2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min mm 1 2		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,2	1145-1160	250	6,0	100 min. 7,4		1100	10,2-10,3
VH = max. 46				4,0	1200-1230			250 5,9-6,1		900	10,4-10,6
				1350	0 - 1,0			335 - 375=2,0		700	10,6-10,7
										550	10,8-10,9

 Torque-control travel on flyweight assembly dimension a = 0,55 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA	0,7 bar	-		LDA	0,7 bar	100	140,0-160,0
1100	134,0-136,0 (131,0-139,0)			550	138,0-142,0 (135,0-145,0)		
				LDA	0 bar		
				500	106,0-110,0 (103,0-113,0)		

Checking values in brackets

10.83

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D. Adjustment Test for Manifold Pressure Compensator

STE 10,0 d 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 157-1 + RQ..PA 692	0,70	0 0,52 0,42	10,8-10,9 9,5- 9,6 10,5-10,6 9,8-10,0

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 s

1. Edition

En

PES 6 P 110 A 720 LS 295 RQV 250-1100 PA 373 DR

Komb.-Nr. 0 402 046 170

supersedes-

company: MAN

engine: D 2566 MT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 mm (from BDC) RW = 9,0 - 12,0 mm
(2,95 - 3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,1+0,1	14,5-14,8	0,4(0,8)			
250	6,8-7,0	1,2-1,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 8,5	200	0,6-0,8
ca. 67	11,1	1140-1150					250	6,8-7,0	500	3,9-4,1
	4,0	1280-1310					520-	580=2,0	800	5,5-5,7
	1400	0 - 1,0							1100	8,1

Torque control travel s = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 145,0-148,0 (142,5-150,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	215,0-235,0 (211,0-239,0)	1100	12,1+0,1
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,0-116,0)			700	12,8+0,1
							850	12,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 s

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 295 + RQV..PA 373 DR	0,50	0 0,20 0,32	12,8 - 12,9 10,9 - 11,0 11,5 - 11,6 12,2 - 12,4

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 s 1

1. Edition

En

PES 6 P 110 A 720 LS 295 RQV 250-1100 PA 421 DR

Komb.-Nr. 0 402 046 174

supersedes...

company: MAN

engine: D 2566
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 mm (from BDC) RW = 9,0 - 12,0 mm
(2,95 - 3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1+0,1	14,5-14,8	0,4(0,8)			
250	6,9-7,1	1,2-1,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	200	0,6-0,8
ca. 68	11,1 4,0 1400	1140-1150 1245-1275 0 - 1,0					250 520-	6,9-7,1 580=2,0	500 800 1100	3,9-4,1 5,5-5,7 8,1

Torque control travel = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1100	0,7 bar 145,0-148,0 (142,5-150,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	215,0-235,0 (211,0-239,0)	1100 700 850	12,1+0,1 12,8+0,1 12,3+0,2
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,0-116,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10,83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 s 1 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 295 + RQV..PA 421 DR	0,50	0 0,20 0,32	12,8 - 12,9 10,9 - 11,0 11,5 - 11,6 12,2 - 12,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 1 8

1. Edition

En

PES 6 P 110 A 720 LS 295 RQ 250/1100 PA 422 DR

Komb.-Nr. 0 402 046 173

supersedes-

company: MAN

D 2566 MTSF

engine: 206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0}{(2,95-3,1)}$ mm (from BDC) Zyl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1+0,1	14,5 - 14,8	0,4(0,8)			
250	6,8-7,0	1,2 - 1,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,1	1145-1160	250	6,9	100	min. 8,5	1100	12,1-12,2
VH = max. 46°				4,0	1200-1230			250	6,8-7,0	1000	12,3-12,5
				1350	0 - 1,0			370-	410=2,0	800	12,6-12,8
										700	12,8-12,9

Torque-control travel
on flyweight assembly dimension a =

0,3

mm

Speed regulation: At

1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		3a		3b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA	0,7 bar	-		LDA	0,2 bar	100	215,0-235,0
1100	145,0-148,0 (142,5-150,5)			500	123,0-127,0 (120,0-130,0)		(211,0-239,0)
LDA	0,7 bar			LDA	0 bar		
700	157,0-161,0 (154,0-164,0)			500	110,0-113,0 (107,0-116,0)		

Checking values in brackets

10.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 1 8 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 295 + RQ..PA 422 DR	0,50	0 0,20 0,32	12,8 - 12,9 10,9 - 11,0 11,5 - 11,6 12,2 - 12,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 a 1
1. Edition

En

PES 6 P 110 A 720 RS 361 US-RSV 400-1100 P 2/497
Komb.-Nr. 9 400 231 108
Use overflow valve 1 457 413 010

supersedes -
company John Deere
engine 6466 A
161 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85
(2,70-2,90) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	15,3-15,5	0,4(0,75)			
400	5,4-5,6	0,7-1,3	0,6(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0	-	-	-	ca. 20	400	5,0	1100	11,0-11,1
ca. 44							100	min. 19,0	950	11,0-11,2
2a							400	5,4-5,6		
	10,0	1140-1150					630-690	= 2,0		
	4,0	1220-1250					700	max. 1,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
LDA 1100	0,9 bar 153,0-155,0 (150,0-158,0)	1140-1150*		LDA 950	0,9 bar 153,0-159,0 (151,0-161,0)	100	160,0-180,0	0	
				LDA 500	0 bar 118,5-124,5 (116,5-126,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 a 1

- 1 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..RS361 + US-RSV..P2/497	0,38	0,24	10,65 - 10,75 9,9 - 10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 10,1 a 1

1. Edition

En

PES 6 P 110 A 720 RS 370 US-RSV 400-1050 P0/496
Komb.-Nr. 9 400 231 107
Use overflow valve 1 457 413 010

supersedes -
company John Deere
engine 6619 A
205 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,75-2,85 mm (from BDC)
(2,70-2,90)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,5+0,1	17,7-17,9	0,4(0,75)			
400	5,9-6,1	1,3-1,9	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 16	400	5,5	1050	12,5-12,6
ca. 38,5							100	min. 19,0	700	13,7-14,0
							400	5,9-6,1	500	10,7-10,8
							540-600	= 2,0		
2a	11,5	1090-1100					650	max. 1,0		
	4,0	1155-1185								
	1280	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)								
rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	1,2 bar 176,5-178,5 (173,5-181,5)	1090-1100*	LDA 700	1,2 bar 200,0-206,0 (198,0-208,0)	100	min. 170,0	400	6,0
			LDA 500	0 bar 125,0-131,0 (123,0-133,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

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J22

J22

D. Adjustment Test for Manifold Pressure Compensator

DEE 10,1 a 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..RS370 + US-RSV..PO/496	0,61	0,28	13,65 - 13,75 11,5 - 11,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 q 23

1. Edition

En

PES 6 P 110 A 720 LS 375

RQ 250/1100 PA 658-4

Komb.-Nr. 0 402 046 258

supersedes—

company: MAN

engine: D 2566 MTSFV

191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0 - 3,1} (2,95-3,15) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	13,6-13,8	0,4(0,8)			
250	6,8-7,0	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
600	19,2-20,8	600	20,0	10,7	1145-1160	250	7,0	100	min. 8,5	1100	11,7-11,8
VH =	max. 46°			4,0	1200-1230			250	6,9 - 7,1	700	11,7-11,9
				1350	0-1,0			370-410	= 2,0		

Torque-control travel
on flyweight assembly dimension a = 0 mmSpeed regulation: At 1145-1160 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
LDA 1100	0,7 bar 136,0-138,0 (133,0-141,0)	-		LDA 500	0,17 bar 123,0-127,0 (120,0-130,0)	100	215,0-235,0
LDA 700	0,7 bar 133,0-137,0 (130,0-140,0)			LDA 500	0 bar 113,0-116,0 (110,0-119,0)		

Checking values in brackets

10.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 23

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS375 + RQ..PA658-4	0,17		11,5 - 11,6
		0,70	11,7 - 11,8
		0	11,0 - 11,1
		0,11	11,2 - 11,4

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 HIP 11,9 a

1. Edition

En

PE 6 P 110 A 720 RS 380 RQV 250-950 PA 434-1

Komb.-Nr. 0 401 846 495

supersedes

company: Hispavinsa

engine: BSR 36 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 - 2,9$ mm (from BDC) RW = 9,0 - 12,0 mm
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	15,5+0,1	18,8-19,0	0,4(0,75)			
250	8,5-8,7	2,4-3,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	200	0,5-0,8
ca. 64	14,5	990-1000				350-465	250	8,5-8,7	450	3,8-4,2
	4,0	1115-1145					415-	475=2,0	700	5,2-5,4
	1250	0 - 1,0							950	7,5

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed 4a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 950	0,7 bar 188,0-190,0 (185,0-193,0)	990-1000*	LDA 500	0 bar 141,0-144,0 (138,5-146,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

HIP 11,9 a - 2 -

Test at n = 500 ^{rev/min} decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 380 + RQV..PA 434-1	0,70	0 0,45 0,31	15,5 - 15,6 13,2 - 13,3 15,0 - 15,1 13,7 - 13,9

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 a

3. Edition

En

PE 6 P 120 A 320 RS 383 RQV 250-1200 PA 425 R

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes 2.83

company: RVI

engine: MIDS 062030

165,5 kW (225 PS)

Komb.-Nr.

0 401 846 404

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 - 2,9$ mm (from BDC) = RW $9,0 - 12,0$ mm
(2.75-2.95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	13,9+0,1	14,8 - 15,1	0,5(0,9)			
275	4,7-4,9	0,8 - 1,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1240	15,2-17,8	-	-	-	ca. 12	100 275	min. 6,3 4,7-4,9	200 530 870 1200	0,2-0,6 2,9-3,1 4,8-5,0 8,0
ca. 66	12,9 4,0 1500	1245-1255 1340-1370 0 - 1,0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑧		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 148,0-151,0 (145,0-154,0)	1245-1255*	LDA 700	0,7 bar 144,0-148,0 (141,0-151,0)	100	120,0-140,0 = RW 19,5 - 21,0 mm	-	-
			LDA 500	0 bar 89,0-92,0 (86,0-95,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1083

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D. Adjustment Test for Manifold Pressure Compensator

BET 8,8 a - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 383 + RQV..PA 425 R	0,23	0,70 0 0,19	13,4 - 13,5 13,9 - 14,0 12,2 - 12,3 12,6 - 12,8

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8a 1

1. Edition

En

PE 6 P 120 A 320 RS 383 RQV 275-1200 PA 425-2
Komb.-Nr. 0 401 846 486
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes
RVI
company
MIDS 0 62030
engine: 165,5 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) RW = 9,0-12,0 mm
(2,75-2,95)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1200	13,9+0,1	14,9-15,1	0,5(0,9)			
275	4,7-4,9	0,8-1,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,8	-	-	-	ca. 9	200	min.7,8	275	1,1-1,2
ca. 64	12,9	1245-1255					275	4,7-4,9	450	3,4-3,8
	4,0	1395-1425							850	5,4-5,6
	1550	0 - 1,0				275-380			1200	7,6
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational-speed		Fuel delivery characteristics		Starting fuel delivery		Torque-control	
Control-rod stop	Test oil temp. 40°C (104°F)	limitation	intermediate speed	high idle speed		idle	switching point	travel	Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4a	4	5	6	7	8	9
LDA 1200	0,7 bar 149,0-151,0 (146,0-154,0)	1245-1255 *		LDA 700	0,7 bar 143,0-149,0 (140,0-152,0)	100	120,0-140,0 (116,0-144,0)	-	-
				LDA 500	0 bar 90,0-92,0 (87,0-95,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
10.83

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K7

K7

D. Adjustment Test for Manifold Pressure Compensator

BET 8,8 a 1 - 2 -

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 383 + RQV..PA 425-2	0,70	0 0,23 0,19	13,9-14,0 12,2-12,3 13,4-13,5 12,5-12,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 5
1. Edition

En

PE 6 P 120 A 320 RS 385-2 RSV 250-750 P 7/479
Komb.-Nr. 0 401 876 274

supersedes -
company DAF
engine DKX 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 mm (from BDCRW = 9,0-12,0 mm)
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	24,9-25,3	0,5(0,9)			
250	6,2-6,4	1,3-1,7	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
max.	800	0,3-1,0 x = 3,75	-	-	-	ca. 18	250	6,3	-	-
ca. 44	11,6	790-795					250	6,2-6,4		
2a	4,0	810-825					250-300	2,0		
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to .)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	249,0-253,0 (246,0-256,0)	790-795*	-	-	-	-	-	-	-
						250	13,0-17,0 (10,0-20,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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10.83

Test Specifications Fuel Injection Pumps ② and Governors

En

 PES 6 P 120 A 720 LS 388 Z RQ 250/1100 PA 658-7
Komb.-Nr. 0 402 046 286

 Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes -

company: MAN

engine: D 2566 MK

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	17,9-18,1	0,5(0,9)			
250	6,4-6,6	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
600	19,2-20,8 VH=max. 46°	600	20,0	10,3 4,0 1350	1145-1160 1185-1215 0-1,0	250	6,5	100 250 335-375=2,0	min.8,0 6,4-6,6 335-375=2,0	1100 750 865 970	11,3-11,4 12,4-12,5 12,2-12,4 11,5-11,8

 Torque-control travel
on flyweight assembly dimension a = 0,45 mm

 Speed regulation: At 1145-1160 min⁻¹

 1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
LDA 1100	0,7 bar 179,0-181,0 (176,0-184,0)	-		LDA 500	0,33 bar 146,0-152,0 (143,0-155,0)	100	205,0-225,0 (201,0-229,0)
LDA 750	0,7 bar 197,0-203,0 (194,0-206,0)			LDA 500	0 bar 103,0-105,0 (100,0-108,0)	250	12,0-18,0 (9,0-21,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 26

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 Z RQ..PA 658-7	0,70	0 0,33 0,43	12,4-12,5 9,4-9,5 10,9-11,0 11,4-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 UNI 9,6 b 1

2. Edition

En

PES 6 P 110 A 820 RS 424

RQ 275/1300 PA 573

Komb.-Nr. 0 402 046 225

superseded by 83

company: IVECO-Unic

engine: 8220-02

148 KW (204 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3
(2,15-2,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	9,8-9,9	9,3-9,6	0,4(0,75)			
275	4,9-5,1	1,5-2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
600	15,6-16,4	600	16,0	8,8 4,0 1550	1345-1360 1405-1435 0 - 1,0	275	5,0	100 275 360-400 = 2,0	min. 6,5 4,9-5,1	1300 600	9,8-9,9 9,8-10,0

Torque-control travel

0

on flyweight assembly dimension a =

mm

Speed regulation: At

1345-1360 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /~1000 strokes 2				cm ³ /~1000 strokes 5		cm ³ /1000 strokes/mm 7	
1300	93,0-96,0 (90,5-98,5)	-	-	-	-	100	160,0-180,0 (156,0-184,0)

Checking values in brackets

10.83

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K12

K12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 14,4 a

2. Edition

En

PE 8 P 120 A 520/5 RS 427 RSUV 300-1150 POA 324 DR

1- 8- 5- 4 - 7 - 2 - 3 - 6

0-30-90-120-180-210-270-300 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 1.82

company MWM

D 234 V 8

engine 221 KW (300 PS)

Komb.-Nr. 0 401 878 106

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,6-9,7	14,4-14,6	0,5(0,9)			
300	6,0-6,2	2,5-3,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	300	5,6	-	-
	X = 4,0						300	6,0-6,2		
ca. 66	8,6	1190-1200					410-470	= 2,0		
2a	4,0	1230-1260								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	144,0-146,0 (141,0-149,0)	1190-1200	*	-	100	230,0-260,0 (226,0-264,0)	0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

Testoil-ISO 4113

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K13

K13

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,6 a

1. Edition

En

PE 6 P 100 A 720 RS 473 RQ 300/1100 PA 269-1
Komb.-Nr. 0 401 846 494

supersedes -

company: Daimler-Benz

engine: OM 355

177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

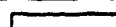
3,5-3,6

(3,45-3,65)

mm (from BDC) $\Delta W = 9,0-12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	12,5-12,7	0,35(0,6)			
300	7,9-8,1	1,7-2,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in



B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	15,6-16,4	600	15,0	12,1 4,0 1350	1145-1160 1215-1245 0-1,0	300	6,1	100 300 320-370=2,0	min.7,5 6,0-6,2 2,0	-	-

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		Control rod stop rev/min 3		cm ³ /1000 strokes 5		cm ³ /1000 strokes / mm 7	
1100	125,0-127,0 (123,0-129,0)	-	-	600	117,0-121,0 (114,5-123,5)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

Testoil ISO 4113

Testoil-ISO 4113

PE 10 P 100 A 320 LS 811
LS 811Z

PO 300/1250 PA 329/2 R (1)

RO 300/1250 PA 187 R (2)

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2

0 -45 -72 -117-144-189-216-261-288-333⁰ ±0,5⁰ (±0,75⁰)

supersede10.80

company **Daimler Benz**

engine: OM 403

236 kW (320 PS)

206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke	3,40-3,50 (3,35-3,55)
---------------------------	--------------------------

mm (from BDC)

Zvl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	11,7 - 12,7	0,3	9,1-9,2	8,3 - 8,5	n = 1250
600	9	5,0 - 6,2	0,3	7,4-7,6	1,7 - 2,3	300
600	15	15,3 - 17,0				
200	9	3,5 - 4,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

329/2 R.

Checking of slider PRG check ①		Full-load speed regulation Setting point ②				Idle speed regulation Setting point ③				Torque control ④	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1270 1300 1330 1380	15,6-16,0 7,5-13,0 0 - 9,2 0	540	0	200 300 400 440	6,9-8,1 4,2-6,5 0 -2,4 0	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 1290 - 1310 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
1250	98,0 - 100,0	600	600	76,0 - 81,0	100	110,0 - 130,0
					300	10,0 - 14,0
(When checking extend by $\pm 2,0$ cm ³)						

Checking values in brackets

10.83

B. Governor Settings

187R with Z MB 16,0 c1 -2-

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	8,1	1295-1310	300	7,5	100	9,3	-	-
								300	7,4-7,6		
1400	0 - 1			4,5	1330-1360			420- 460	=2,0 mm		

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1295-1310 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40° C (104° F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /- 1000 strokes	rev/min	rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1250	83,0 - 85,0	500	600	58,5 - 63,5	100	110,0 - 130,0

(increase by ± 2,0 cm³!)

Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40° C (104° F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /- 1000 strokes	rev/min	rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 m 1

En

1. Edition

PE 12 P 120 A 520 LS 836
Komb.-Nr. 0 401 840 090

RQV 250-1150 PA 668

supersedes

company: MAN

engine: D 2542 MLE
478 kW

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	18,5-18,8	0,5(0,8)			
250	6,7-6,9	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100 250	min. 8,3 6,7-6,9	250 550 950 1150	1,2-1,3 3,5-4,0 6,6-6,8 8,3
ca. 64	10,3 4,0 1400	1190-1200 1280-1310 0-1,0				290-395 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	185,0-188,0 (182,0-191,0)	1190-1200*	-	-	100	200,0-220,0 (196,0-224,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

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K17

K17

Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 SCA 11,0 r 7

1. Edition

En

PE 6 P 110 A 720 RS 3040-1 RSV 350-1100 P 1/505

Komb.-Nr. 0 401 876 734

supersedes
company **Scania**
engine **DS 11 05**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,3 - 3,4$ mm (from BDC) $RW = 9,0 - 12,0$ mm
(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	15,6-15,8	0,6 (0,8)			3,3 ± 0,1
350	4,4-4,6	1,8-2,2	0,2 (0,4)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	350	4,0	-	-
	x = 6,0						350	4,4 - 4,6		
							440-500	= 2,0		
ca. 66	12,1	1140-1150								
2a	4,0	1210-1240								
	1350	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1100	156,0-158,0 (154,0-160,0)	1140-1150*	700	157,5-160,5 (155,0-163,0)	100	240,0-290,0 = 20,0 - 21,0 mm RW	0 350	4,4-4,6	

Checking values in brackets

* 1 mm less control rod travel than col 2

12.83

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K18

K18

Testoil-ISO 4113

1

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 i
4. Edition

En

PE 6 P 120 A 720 RS 3069 RQV 300-1000 PA 501
Komb.-Nr. 0 401 846 728

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

superseded 7.83
company Ziat
engine 8210.22.269

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
(3,45-3,65) mm (from BDC) $RW = 9,0 - 12,0$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,4+0,1	19,9- 20,1	0,5(0,9)			
300	6,0-6,2	1,5-2,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1045	15,2-17,8	-	-	-	ca.10	100	min.7,6	325	1,2-1,4
ca.65	11, 4,0 1250	1040-1050 1115-1145 0-1,0				350-455	300	6,0-6,2	450 800 1000	2,6-3,1 5,7-6,0 7,9

Torque control travel s = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 199,0-201,0 (196,0-204,0)	1040 - 1050	LDA 1000	0 bar 158,0-160,0 (155,0-163,0)	100	175,0-195,0 (171,0-199,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.83

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K19

D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 i

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 3069 + RQV..PA 501	0,36	0,70 0 0,31	11,6-11,7 12,4-12,5 10,0-10,1 10,6-11,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 FIA 13,8 h
5. Edition

En

PE 6 P 120 A 720 RS 3069 RQ 300/1000 PA 502

supersedes 7.83

company: Fiat

engine: 8210.22.373

Komb.-Nr. 0 401 846 729

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,4+0,1	19,9-20,1	0,5(0,9)			
300	6,0-6,2	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Test specifications				Test specifications				Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	11,4	1045-1060	300	6,1	100	min. 7,6	1000	12,4-12,5
VH=	max. 46°			4,0	1130-1160			300	6,0-6,2	600	12,4-12,6
				1250	0 - 1,0			365	405=2,0		

Torque-control travel
on flyweight assembly dimension a =

0

mm

Speed regulation: At

1045-1060 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1000	0,7 bar 199,0-201,0 (196,0-204,0)		-	LDA 1000	0 bar 158,0-160,0 (155,0-163,0)	100	175,0-195,0 (171,0-199,0)

Checking values in brackets

10.83

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K21

K2A

D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 h

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm	
PE 6 P .. RS 3069 +RQ..PA 502	0,36	0,70 0 0,31	11,6-11,7 12,4-12,5 10,0-10,1 10,6-11,0	

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 9,6b

3. Edition

En

PES 6 P 110 A 720 RS 3079 RSV 300-1150 P 8/486

A 486

Komb.-Nr. 0 402 076 714

supersedes 9.83
company KHD
engine F 6 L 413 FRC
199 kW (271 PS)
/ 2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC) $9,0 - 12,0$ mm
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	14,2+0,1	17,7-18,1	0,4(0,8)			
300	7,2-7,3	1,3- 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 13	300	6,7	1150	14,2+0,1
	X = 2,75								350	15,4+0,5
ca. 48	13,2	1190-1200							550	14,2+0,1
	4,0	1220-1250								
	1390	0,3 - 1,7								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
LDA 1150	0,9 bar 177,0-181,0 (174,0-184,0)	1190-1200*	LDA 800 0,9 bar 175,0-179,0 (172,0-182,0)			100	190,0-210,0		
			LDA 500 0 bar 123,0-125,0 (120,0-128,0)						

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..RS3079 mit .. P8/486 A 486	0,9		14,2 - 14,3
		0	11,9 - 12,0
		0,57	13,8 - 13,9
		0,30	12,4 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 i 1

1. Edition

En

PE6P 120 A 320 RS 3116 RQV 250-1100 PA 657-1
Komb.-Nr. 0 401 846 783

supersedes

company Volvo

engine TD 121 GD
242 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6-2,7$
($2,55-2,75$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,6-19,8	0,5 (0,9)			
250	5,6-5,8	2,2-2,6	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 10	100	min. 7,1	200	0,7-0,9
ca. 61	10,4 4,0 1350	1140-1150 1200-1230 0 - 1,0					250 345-405 = 2,0	5,6-5,8	420 660 - 1040 1100	3,3-3,8 6,4-6,6 7,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 196,0-198,0 (193,0-201,0)	1140-1150 *	LDA 700	0 bar 149,0-151,0 (146,0-154,0)	100	240,0-270,0 (236,0-274,0) = 20,0-21,0 mm RW	-	-
					250	22,0-26,0 (19,0-29,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2
12.83

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L1

L1

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 i 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE6P.. RS 3116 +RQV.. PA 657-1	0,70	0 0,43 0,23	11,4-11,5 9,0-9,1 10,8-10,9 9,5-9,7

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 i

1. Edition

En

PE 6 P 120 A 320 RS 3116 RQV 250-1025 PA 657
RS 3116 Z

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes _

company: Volvo

engine: TD 120 G, 243 kW

Komb.-Nr. 0 401 846 773

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6-2,7$
($2,55-2,75$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,7-19,9	0,5(0,9)			2,5±0,1
250	5,6-5,8	2,2-2,6	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1080	15,2-17,8	-	-	-	ca. 10	100 250	min. 7,1 5,6-5,8	300 660	1,7-2,1
ca. 62	10,4 4,0 1250	1065-1075 1125-1155 0-1,0				3a	350-410=2,0		945 1025	6,4-6,6 7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery ⑥ idle switching point		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 700	0,7 bar 197,0-199,0 (194,0-202,0)	1065-1075*	LDA 700	0 bar 148,0-150,0 (145,0-153,0)	100 250	240,0-270,0 (236,0-274,0) =20,0-21,0 mm RW 22,0-26,0 (19,0-29,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 i

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3116 ..RS 3116 Z +RQV..PA 657	0,70	0 0,43 0,23	11,4-11,5 9,0-9,1 10,8-10,9 9,5-9,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K

1. Edition

En

PE 6 P 120 A 320 RS 3118
Komb.-Nr. 0 401 846 772

RQV 250-1025 PA 657

supersedes

company: Volvo

engine: TD 121 F
282 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		2,6-2,7 (2,55-2,75)	mm (from BDC)		RW = 9,0-12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
700	13,0+0,1	23,7-23,9	0,5 (0,9)			2,5 [±] 0,1 (2,2-2,9)
250	3,3-3,5	1,9-2,3	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	15,2-17,8	-	-	-	ca. 10	100	min. 4,8	200	0,7-0,9
ca. 65	12,0	1065-1075					250	3,3-3,5	430	3,5-3,9
	4,0	1130-1160					345-405 = 2,0		660	6,4-6,6
	1250	0 - 1,0							945	
									1025	7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 237,0-239,0 (234,0-242,0)	1065-1075 *	LDA 700	0 bar 149,0-151,0 (146,0-154,0)	100	240,0-280,0 (236,0-284,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 K - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6 P .. RS 3118 + RQV .. PA 657	0,90	0 0,54 0,28	13,0-13,1 9,0-9,1 12,0-12,1 9,9-10,1

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 1

En

1. Edition

PE 6 P 120 A 320 RS 3118
Komb.-Nr. 0 401 846 782

RQV 250-1100 PA 657-1

supersedes

company: Volvo

engine:

TD 121 FD
282 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,6-2,7

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	23,7-23,9	0,5 (0,9)			2,5±0,1
250	3,3-3,5	1,9-2,3	0,5 (0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 9	100	min. 5,0	200	0,7-0,9
ca. 61	12,0	1140-1150					250	3,3-3,5	430	3,4-3,9
	4,0	1220-1250					290-340 = 2,0		660	
	1350	0 - 1,0							-	6,4-6,6
						3a			1040	
									1100	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 237,0-239,0 (234,0-242,0)	1140-1150 *	LDA 700	0 bar 149,0-151,0 (146,0-154,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.83

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Testoil-ISO 4113

L7

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 K 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P.. RS 3118 + RQV.. PA 657-1	0,90	0 0,58 0,29	13,0-13,1 9,0-9,1 12,0-12,1 10,2-10,4

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 120 A 320 LS 3819-2 RQ 300/1050 PA 656

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 3.83

company: Daimler-Benz

OM 424 LA

engine: 441 kW

Komb.-Nr.0 401 840 713

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDZyl. 12; RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,7 \pm 0,1	19,6-19,8	0,5(0,9)			
300	5,5-5,7	1,4-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6		Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10		Control rod travel mm 12	
600 VH =	19,1-20,8 max.46	600	20,0	11,8 4,0 1300	1085-1095 1165-1195 0-1,0	300	5,6	100 300 360-400=2,0	min.6,0 5,5-5,7 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1085-1095 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel
LDA 1050	0,6 bar 196,0-198,0 (193,0-201,0)	-	-	LDA 500	0 bar 141,0-143,0 (138,0-146,0)	100	170,0-190,0 (166,0-194,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 d

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 12 P..LS 3819-2 +RQ..PA 656	0,80	0 0,59 0,49	12,7-12,8 10,7-10,8 12,1-12,2 11,3-11,5

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 12 P 110 A 320 LS 3820 RQ 900 PA 634

Komb.-Nr. 0 401 840 706

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 7.83
company: Daimler-Benz
OM 424
engine: 288 kW (392 PS)
Generator

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) $1.12; RW = 9,0 - 12,0$ mm
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	12,6 \pm 0,1	12,1-12,3	0,4(0,8)			
300	8,2-8,4	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	11,6 4,0 1050	900-905 841-951 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mmSpeed regulation: At 900-905 min⁻¹1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
880	121,0-123,0 (118,5-125,5)	-	-	-	-	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WEP 001/4 MB 18,3 e

3. Edition

En

PE 10 P 120 A 320 LS 3824 RQ 300/1050 PA 656
1- 8- 7- 6 - 3 - 5 - 2 - 10 - 9 - 4
0-27-72-99 -144-171-216-243 -288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

supersedes 3.83

company: Daimler-Benz
engine: OM 423 LA
346 kW (470 PS)
Euclid
Komb.-Nr.
0 401 849 707

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$ mm (from BDC) Zyl. 10
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3+0,1	17,7-17,9	0,5 (0,8)			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,3	1095-1110	300	4,3	100	min. 5,8	-	-
VH =	max. 46°			4,0	1165-1195			300	4,2 - 4,4		
				1300	0-1,0			335-375	= 2,0		

Torque-control travel
on flyweight assembly dimension a = 0 mm

Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
LDA	0,9 bar	-		LDA	0,9 bar	100	150,0-170,0
1050	177,0-179,0			600	173,0-179,0		(146,0-174,0)
	(174,0-182,0)				(170,0-182,0)		
				LDA	0 bar		
				500	141,0-143,0		
					(138,0-146,0)		

Checking values in brackets

10 .83

D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 e

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 10 P..LS 3824 + RQ..PA 656	0,90	0 0,41 0,35	11,3 - 11,4 10,2 - 10,4 10,9 - 11,0 10,5 - 10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u 9

En

2. Edition

PE 6 P 120 A 720 RS 7001 S RQV 200-1050 PA 539

Values only apply to test nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 015

supersedes 3.83

company Saab-Scania

engine DS 1115

Komb.-Nr. 0 402 646 802 S

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $5,0-5,1$
(4,95-5,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	19,4-19,6	0,6(0,9)			3,3 ^{+0,1}
225	4,4-4,6	1,3-1,7	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 10	100 225 310-370=2,0	min.5,9 4,4-4,6	150 450 750 1050	0,5-0,7 3,3-4,0 5,3-5,5 7,7
ca. 62	12,0 4,0 1400	1090-1100 1190-1220 0-1,0				3a				

Torque control travel = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 194,0-196,0 (191,0-199,0)	1090-1100*	LDA 1050 LDA 500	0,9 bar 189,0-197,0 (187,0-199,0) 0 bar 160,0-164,0 (158,0-166,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.83

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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u 9

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P .. RS 7001S +RQV .. PA 539	0,90	0 0,42 0,29	13,0-13,1 11,6-11,7 12,8-12,9 11,9-12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

* * Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,2 c

3. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/484

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45°-0,5°(-0,75°)

Values only apply to test nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 015

supersedes 5.83

company Saab-Scania

engine DS 14 40, 42

DSI 14 40, 41

Komb.-Nr. 0 402 678 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1

bis FD 052: 4,4-4,5 mm

(4,35-4,55)

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7-18,9	0,6(0,9)			3,3 ⁺ 0,1
350	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0 x = 6,0	-	-	-	ca. 30	350	4,0	-	-
ca. 66	12,2	1140-1150					350	4,4-4,6		
2a	4,0	1210-1240					440-500	=2,0		
	1370	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (182,0-193,0)		100	240,0-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

* 1 mm less control rod travel than col 2

BOSCH

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10.00

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

 WPP 001/4 SCA 14,2 d
3. Edition

En

PE 8 P 120 A 920/4 LS 7008

RQV 200-950 PA 547-1

supersedes 7.83

company Scania

 Values only apply to test nozzle-and-holder assembly 1 688 901 019
and fuel-injection test tubing 1 680 750 015

engine DSC 1401

Komb.-Nr. 0 402 648 807

 1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (4,45-4,65) mm (from BDC) RW=6,0 - 8,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	14,2+0,1	20,1-20,3	0,7(1,0)			3,3 [±] 0,1
225	4,6-4,8	1,4- 1,8	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

 Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	990	15,2-17,8	-	-	-	ca. 9	100	min.5,9	150	0,5-0,9
ca. 60	13,2	990-1000					225	4,4-4,6	420	3,0-3,5
	4,0	1115-1145					310-370	= 2,0	680	4,8-5,1
	1250	0-1,0				3a			950	7,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000 *	LDA 950	0,9 bar 194,0-202,0 (193,0-205,0)	100	250,0-300,0 bei 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.83

Test oil-ISO 4113

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L12

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D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 7008 +RQV..PA 547-1	0,35	0,90	13,6 - 13,7
		0	14,2 - 14,3
		0,24	11,5 - 11,6
			12,1 - 12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)